

MOTOR TREND

The Magazine for a Motoring World

JULY 1951 25c

TESTING THE NEW ECONOMY CHAMP

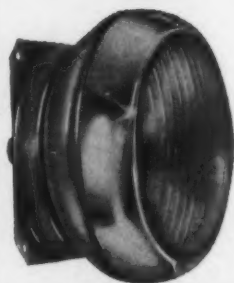
by Griff Borgeson

The Rebuilt Engine Racket



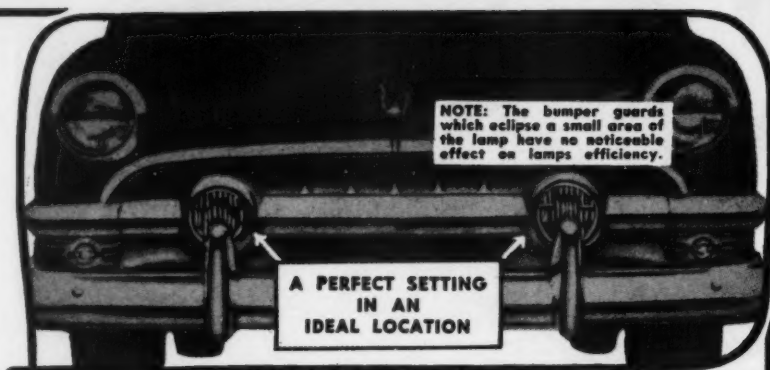
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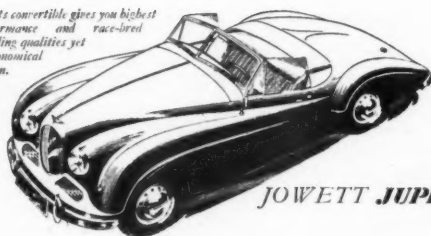
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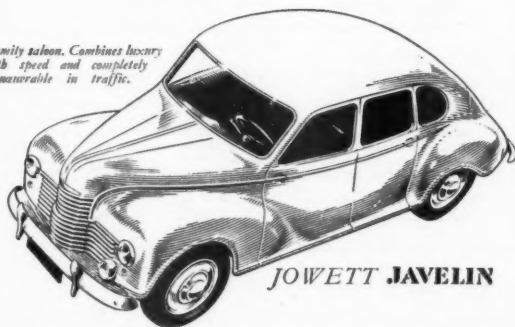
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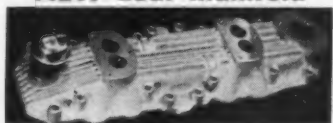
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MOTOR TREND

THE MAGAZINE FOR A MOTORING WORLD

JULY 1951

Published Monthly



VOL. 3 • NO. 7

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COVER: "Merr of Zaro" is not a far-fetched pun. John Zaro's striking convertible is powered by a highly-tuned Mercury engine. The car's attractiveness is complemented here by beautiful June Burroughs of Glen Ellen, Illinois, pleasantly clad in a swim suit by Rose Marie Reid and accompanied by Bill Evans of Los Angeles. PHOTO BY C. A. PETERSON

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In the Next Issue...

WHY NOT a flying car? It sounds fantastic, but what miracle of our times hasn't seemed unlikely to millions? Henry Keck, nationally-known industrial designer, will bring you the story of the helicar, his own design for the automobile-helicopter of the future.

Gordon Schroeder, one of the best race car builders in the business, covers the Memorial Day classic from a fresh slant: "Indianapolis As Seen From the Pits."

John Bentley will bring us a participant's report on SCCA's grueling Giant's Despair Hill Climb, a revival of one of America's toughest tests of drivers, cars. That's just a sample of what's coming.

YOUR EDITOR SAYS . . .

MANY TIMES in the past we've been approached on the question of club organization and conduct of motor sporting events. Although these two questions are basically separate, they are closely interwoven: A motoring club is formed with one purpose in mind—to allow members to have fun with their cars.

Among the many thousands of motor enthusiasts, much potential club activity is laying dormant, simply because these motorists have lacked the necessary contacts and organizational answers.

We believe we're in a position to help these persons, particularly with little-known or overlooked facts. For example, how many club members know that in the event of an accident during an ordinary touring event, *each* member is liable?

We want to help YOU—if you have any club problems or would like to form a club, write us. We'll be glad to help—personally and through these pages.

THIS MONTH we again take pleasure in welcoming a new addition to our permanent staff. As a writer in the pages of MOTOR TREND, he may not be familiar to you, but he certainly is no "Johnny-come-lately" on the automotive scene. His name, John Bentley. His part in our organization, New York Editor.

Naturally, we knew quite a bit about John before asking him to join our staff, but after his acceptance of the position we asked him to submit a brief biographical sketch so that we might tip off our readers on his interesting background. After he finished outlining his many years of association with the motoring world, he had this to say: "You can summarize all the foregoing in a few words: Bentley is nuts about cars and understands pretty well what makes them tick. He can write and edit, too. Served in the RAF. Does a spot of racing."

You'll be hearing a lot more from him.

ANOTHER regular contributor to our staff, starting with this issue, will be Count Dott. Ing. G. Lurani Cernuschi, better known as Johnny Lurani. Johnny has taken over the duties of reporting the all-important news from the continent.

Count Lurani is well-known to many of you as a race driver and record holder. Not so well known is the fact that he is President of the Competition Committee of the Automobile Club of Milan, member of the board, member of the head committee of the Italian Contest Board (CSAI), and editor of *Auto Italiana*.

This background, naturally, puts Johnny in the wonderful position of being able to bring you the latest news from Europe—sporting, technical, and manufacturing. We're sure you'll agree that his addition to our list of top-notch contributors will make MOTOR TREND more of a must to you than ever before.

—W. W.

July 1951

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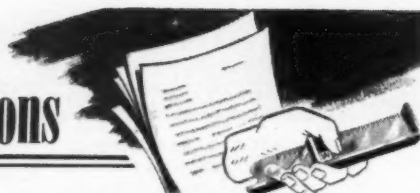
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Five

Reader Reflections



Letters published in this department are the opinions of the writers and are not to be construed as those of the editors. Address correspondence to: Reader Reflections, MOTOR TREND, 1015 S. La Cienega Blvd., Los Angeles 35, Calif.

DIVIDED WE FALL

Gentlemen:

I would like to express my firm agreement with your May editorial concerning friction between motoring clubs. The recent development of this friction is most depressing and should be corrected as quickly as possible. There is no justification for it and it can cause nothing but harm.

Shortly before your May issue appeared I had received notice of a Bugatti Owners' Club rally. This was distinctly a B.O.C. event, organized and run by the B.O.C., one of the biggest and best-managed clubs in existence. The following Clubs were invited to participate: Aston Martin Owners', North Staffs Motor Club, Severn Valley M.C., Vintage Sports Car Club, Hants and Berks Motor Club, Liverpool Motor Club, and Cheltenham Motor Club.

This seems to me a much more civilized and pleasant way of doing things.

Ken W. Purdy
New York, New York

—This is typical of many letters expressing approval of our editorial, which, to ease the minds of some, was not directed at any current dispute, but at the overall picture of club di harmony.—Editor

FOR THOSE EXTRA COPIES

Gentlemen:

I am an ardent sports car fan, but I cannot participate in the sport because of polio. I have been in the hospital for the last 20 months. I am still unable to move my legs and I have very limited motion in the arms. As a result, reading is my only activity. I can't afford to buy enough to keep me occupied. So I would like to make a request to your readers. If there are any of them who have any literature on all phases of automobiles, both domestic and foreign, it would help to make my days more pleasant.

Thank you in advance for any attention you may give this matter.

George F. Haderer, Jr.
c/o New York Hospital
525 East 68th Street
New York, New York

—We hope this helps.—Editor

SCHOOL FOR SAFETY

Gentlemen:

Your thought-provoking "Forty Million Potential Killers" (May '51) spotlights a condition that has been getting more serious with each additional car on the road.

The motor car needs a new approach to the granting of licenses to the novice driver, the driver with sub-standard depth perception and slow reactions, and the accident prone. This group of drivers should be limited to the amount of horsepower they can be allowed to own or operate and a minimum weight, (to avoid the motorcycle type of vehicle with high power-to-weight ratio).

If a driver has been on the road for five or more years without an accident then it should be assumed that he is ready for a test to qualify him for maximum or unlimited horsepower rating as to type of passenger car he can drive. Previous to this he should start (age 16) with ten hp then add ten for each succeeding year of accident-free driving. . . .

George B. Barton
Burbank, Calif.

BETTER LATE THAN NEVER

Gentlemen:

The writer feels forced to comment on your article concerning used car purchasing ("Buying A Used Car," May '51). If he had had the benefit of that knowledge nine years ago in college and thereafter, he would have saved the price of the largest Cadillac considering unspent repair fees and misleading pricing. You have done a service for all inexperienced young men if you have told only one to keep his signing hand in his pocket until his temperature, pulse, and respiration have dropped to normal after the sight of chrome, whitewalls covering an unknown mechanical value. . . .

H. J. Jensen-Norman Jr.
Mt. Vernon, Wash.

AGAIN THE MIGHTY MERCER



Gentlemen:

. . . The writer at the wheel (note right hand wheel) of a 1915 Mercer 22-72 Touring. I wonder if there will ever be again the pleasure that I used to get rolling this old baby down the road with the "Cooper Cut-out" wide open? Twenty mph for music and 65 to 70 for a full-throated roar. The steering was a little rough at the higher speeds but that only challenged the driver's ability, and then there were the brakes, always a question whether or not you had any.

The fuel system was pressure, four pounds, hand pump on the dash. If the gas cap or any part of the system was not air tight, you had to have an assistant to man the pump. Even with all the difficulties I wouldn't trade the thrill of a Sunday ride in the Mercer for the same ride in my present Packard . . .

C. O. Barnhart
Rome, New York

PULLING POWER

Gentlemen:

I want to thank you for including the advertisement for my custom Ford 60 in your "Sell 'N' Swap" column for May. It is a tribute to the wide circulation of your magazine and the interest in "Sell 'N' Swap" that to date I have received four personal visits, five phone calls, 15 letters, and four post cards inquiring about the notice. . . .

Kellam de Forest
Santa Barbara, Calif.

OPPORTUNITY KNOCKS

Gentlemen:

. . . Why can't the big three wake up to an opportunity open to them? They all make at least four lines of cars. Why don't they make each line suit one type of buyer? I suggest the following for the Chrysler line of cars, including Plymouth, Dodge and DeSoto.

Plymouth: 100-in. wheelbase, weight 2000 lbs. for a four-passenger two-door sedan, engine, 60 hp from about 120 cu. in., four-cyl.

Price \$1200. (60c lb.) Sales emphasis on low cost transportation.

Dodge: 115-in. wheelbase, weight 3000 lbs., for seven-passenger station wagon. Engine, 90 hp from 180 cu. in., six-cyl. Price \$1800. (60c lb.) Sales emphasis on truck-like construction and reliability.

DeSoto: 115-in. wheelbase, weight 2500 lbs. for four-passenger two-door deluxe sedan. Engine, 90 hp from 180 cu. in., six-cyl. (100 hp available with high compression head). Price \$2250 (90c lb.) Sales emphasis on sports performance and deluxe finish.

Chrysler: 125-in. wheelbase, weight 3500 lbs. for seven-passenger station wagon. Engine, 120 hp from 240 cu. in. V-8 (132 hp available with high compression head). Price \$3150 (90c lb.). Sales emphasis on size, finish and outdaring the neighbors.

Note that all these engines could have the same bore, stroke, bearings, valves, etc. What would that do to costs? The Dodge and DeSoto could use the same chassis.

I think the little four-cyl. Henry J is closest to a big, exclusive market of its own. . . .

J. N. A. Hawkins
Arcadia, Calif.

EFFECT OF STREAMLINING

Gentlemen:

I have just read April's MOTOR TREND with interest. While agreeing in the main with Mr. Huntington's article on Formula A racing I believe that he has considerably overestimated the effects of streamlining. No monoposto makes any pretense at aerodynamic efficiency, in fact Mr. Laurence Pomeroy goes so far as to maintain that the drag coefficients of all single seater cars of the past 40 years have been sensibly the same, although I find this hard to believe. The reasons for this dearth of fully streamlined racing cars are rather obscure. Auto-Union produced one in the mid-30's. Common explanations of its discontinuance (it raced, I believe, at Tripoli) are inferior acceleration due to increased weight, brake fade due to shrouding of the wheels and tire wear due to both these factors. Of these, only the braking difficulty seems acceptable as it was demonstrated at the Avus circuit in 1937 that tire wear was less on the heavier, more powerful but fully streamlined seven-litre Mercedes and Auto Unions than on the conventionally-bodied G.P. cars, indicating that less power was necessary for acceleration in spite of their increased weight. This surprised even the designers of the cars.

Furthermore, Mr. Reid Railton has stated that on a reduction of drag which increases the top speed of a given car from 80 to 90 will, provided there is no increase in weight, also reduce its acceleration time by 10 per cent. So, presumably, if the drag can be reduced without more than a 10 per cent weight increase, the overall effects will be beneficial.

John G. Henry
Toronto, Canada

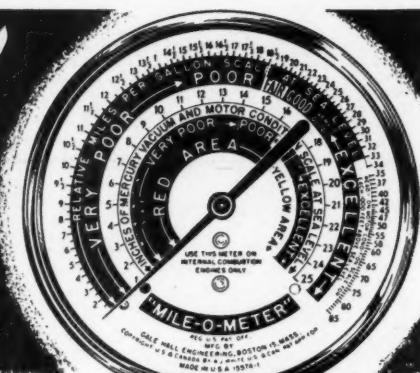
—We asked Roger Huntington to comment on reader Henry's letter. Here is his reply. "It is true that the OVERALL drag coefficient of large prewar Grand Prix cars varied little between types. But this was only because, as bodies became more streamlined and the cars got faster, the frontal area of the TIRES shot up so that, in the late '30s, the tires alone were accounting for some 95 per cent of the total air drag! Now with our lighter 1½-litre postwar G.P. cars, body streamlining and frontal area remain nearly the same, but tire size is smaller—so that air drag on the body can now have some effect on top speed. Not much, to be sure, but a few mph at the top end.

"In regard to using fully-streamlined bodies (enclosing the wheels) in G.P. racing, though several attempts have been made in the last 30 years, they've never been able to make it work. The big factors here are not brake fade, weight, tire wear, etc., but merely STABILITY. Without going into the aerodynamics of the problem, we can say that this type of car will very likely be directionally unstable in a crosswind. In road racing, a situation like this can be pretty rough, as when coming from behind a row of trees into the crosswind. The last experiments were by Auto-Union in 1938, but the car crashed in practice at Rheims and the project was abandoned."—Editor

THE TEST OF THE BEST IS... Performance! INSTALL THE MILE-O-METER

(Reg. U. S. Pat. Off. International Copyrights & Patents Secured)

MILES PER GALLON AND TUNE-UP GAUGE



TIME SAYS:

The meter shows the driver the rate at which he is using gas, thus warns him when he is driving uneconomically.

NEWSWEEK SAYS:

"All the mileage in a present-day auto is in a man's foot." The aim of the gauge is to offer a guide to operating efficiency. The Mile-O-Meter can also be used to check engine condition.

HOUSE BEAUTIFUL SAYS:

The Mile-O-Meter is a remarkable gauge for your dashboard that indicates how many miles per gallon you are getting. Not only is it an effective aid for achieving gasoline economy, it also tells the driver what to check if his car's performance is below normal.

TRUE SAYS:

The Mile-O-Meter gauge is a scientific instrument of known merit for showing any driver the condition of his engine and miles-per-gallon rate. Easily installed on any car or truck.

CERTIFIED

1950

APPROVED

JOHN C. GUENTHER
FAMOUS AUTO EDITOR

THE COLUMBUS DISPATCH "BEHIND THE WHEEL" - THE TEST OF AN EFFECTIVE VACUUM GAUGE

WROTE

For some time I have noticed advertisements, and heard comments, about a special sort of vacuum gauge. This device is actually nothing but a well-made, sensitive gauge which measures the degree of vacuum in the intake manifold of an automobile engine. But it has the addition of a rather elaborate dial face which helps interpret what the gauge pointer signifies and does so in a way that the average driver can get something out of it. So I wrote the manufacturer and procured such a gauge for testing. It has been in service in my car for more than a thousand miles. I believe it is a sturdy, worthwhile instrument and that it can be depended upon to do these things:

1. It shows at all times, and instantly, the relative amount of gasoline the engine is consuming.
2. It shows at all times, and directly, during idling, the general condition of the engine.
3. Erratic flutters and other reactions by the gauge pointer have specific meanings which are interpreted by a chart furnished

with the meter. I deliberately caused malfunctioning of my engine (by shorting out plugs, misadjusting the idling mixture, etc.) and found the gauge faithfully revealed what had happened.

In driving I found that it does promote gasoline economy because every time you step on the accelerator and really feed fuel to the engine, the gauge pointer protests with alarming drops toward zero miles per gallon. Although I know perfectly well how it works and what the readings mean, I find myself easing up so that the needle gets back to a point showing half way decent gasoline economy! It's funny how it holds you into check.

Besides this virtue, which is bound to save gasoline if you watch the gauge at all, the meter has the further value of giving the driver adequate advance warning if and as the efficiency of his engine deteriorates. You'll know, in other words, when a tune-up is indicated. It won't be a matter of the engine getting worse and worse until it begins

to behave badly . . . rather you'll be aware of the process from the beginning and can do something about it, if you want to, before anything really gets out of hand.

This device has the blessing of the Contest Board of the American Automobile Association which has officially certified that it does indicate relative miles per gallon fuel consumption at all normal cruising speeds and does provide a constant check on engine condition. It is simple to install, requires no cutting or marring of one's car. A usual mounting place is left of the steering wheel.

Actual brand names are not published in this column, but I will be happy to give full information and prices on this meter to any who inquire. This particular item is not a mere gadget, but utilizes the vacuum gauge principle which is important to any motor analysis. As such, and because it is a popular accessory, it seemed to call for a test of it for the readers of this column, particularly those looking for Christmas presents for auto enthusiast friends or relatives.



1. TEACHES you how to drive economically—eliminates the Jack Rabbit starts and passing on hills—that's where you really drink up fuel.



2. PERFORMANCE charts and suggestions are enclosed with every meter, enabling you to determine how many miles per gallon you are getting, and what adjustments to make to increase your mileage.



3. YOU can check your engine condition at all times, and if it is not operating efficiently, Mile-O-Meter will tell you how to correct the condition.



4. SIMPLY mount meter on windshield frame or on dashboard area to suit your convenience with the aid of mounting brackets that can be bent into practically any position.

W. CLIFFORD HARVEY FAMOUS AUTO EDITOR WROTE IN THE CHRISTIAN SCIENCE MONITOR FEB. 20, 1951

Asking a motorist how many miles he gets to the gallon is like asking the golfer for his annual stroke average for 18 holes. Neither one really knows. But they like to estimate. And the figures vary according to the personal pride of the motorist in his car, and the golfer in his clubs. What's a few strokes or miles in favor of either when they can't be sure of the performance? All that is ended for the motorist, at least, by a new instrument approved by the American Automobile Association, as an accurate, panel gauge of the miles per gallon the motorist

is getting at certain speeds. Known as the Mile-O-Meter, and made by a Boston firm, it fits on the instrument panel or attaches to the steering column or dashboard in a matter of 10 minutes or so. Watching the needle slide back and forth from 28 miles an hour going downhill to 6 or 7 miles going uphill is rather fascinating. Even more amazing is the instrument's ability to tell the driver the trouble with his motor. If the mileage is low. When one end of the needle points to very poor, or only fair mileage, the other end of the needle directs

attention to the possible reasons for this low mileage.

The meter is an outgrowth of a recently developed Chokometer, a mobile unit used in gas stations to indicate the condition of spark plugs, points, carburetion and other mechanical parts.

In the same way, it is hooked to the manifold of the engine to register the mileage performance of the car. And with regular usage, it soon directs the motorist to the most economical speeds for driving his particular car.

DELUXE MODEL (ALL CHROME) 3-5/8" Dia. \$14.95 Ppd.*

STANDARD MODEL 2-3/4" Dia. \$9.75 Ppd.* Fed. Tax Incl.

Mile-O-Meters Ship Prepaid

FITS ALL CARS—PERMANENTLY MOUNTED.

Checks Spark Plugs, Carburetor and 31 other Motor adjustments. Shows how to increase miles per gallon at every speed. 1 to 5 minute installation — 4 color Easy-To-Read Dial. No holes to drill. Mounting bracket fits dash or windshield frame. No experience needed. Complete instructions and 16-page mileage book included. Makes a perfect gift. (Beautifully gift wrapped at no charge.)

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World's Largest Producers of Tune-Up Gauges

Please send..... Mile-O-Meters at.....

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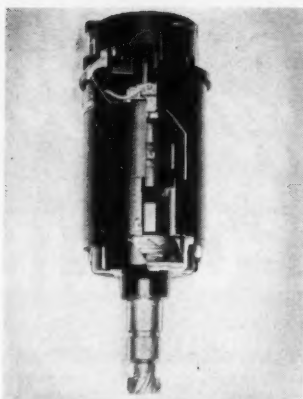
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Fits all cars . . . all engines without any alterations.
 Powerful and regular spark at lowest and highest engine speeds.
 Easy starting in all temperatures.
 Platinum points for greatest durability.
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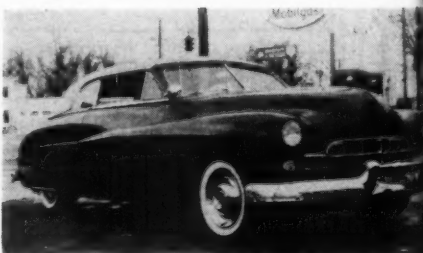
**CUSTOM
 CREATIONS**



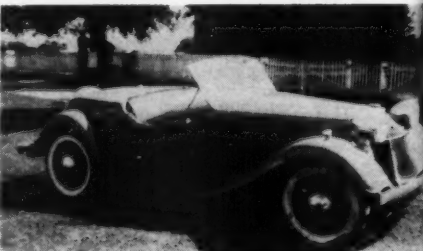
CUSTOM station wagon built by Roger M. Angelini and Raymond Peloquin, Leominster, Mass. Basic components are from '36 Ford V-8 sedan

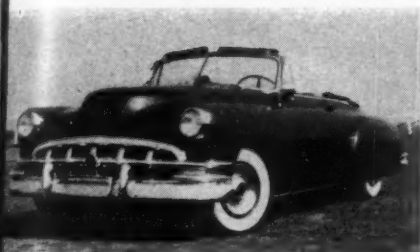


DECHROMED '50 Plymouth belongs to Chuck Kling, Oak Park, Illinois. Interior is upholstered in leopard skin. Design is simple and smart

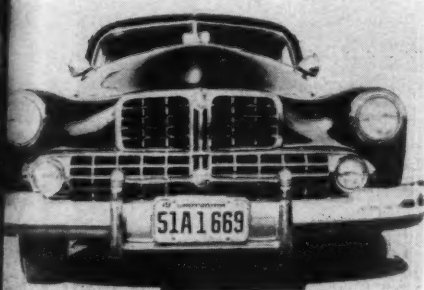


BUILT from a wreck, this beautiful custom '49 Mercury is owned by Sam Dibitanlo, Reno, Nevada. Top was lowered by slanting windshield





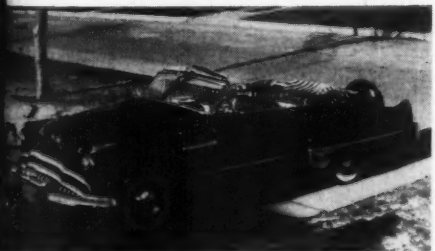
THIS clean-nosed beauty is the '50 Pontiac convertible of Larrick Jones, Greenville, S.C. Chrome rub strips have been removed and deck lid filled



GRILLE of '47 Lincoln presents an imposing front end on Reno Garcia's '47 Buick sedanette. Other restyling includes '49 Cadillac fenders



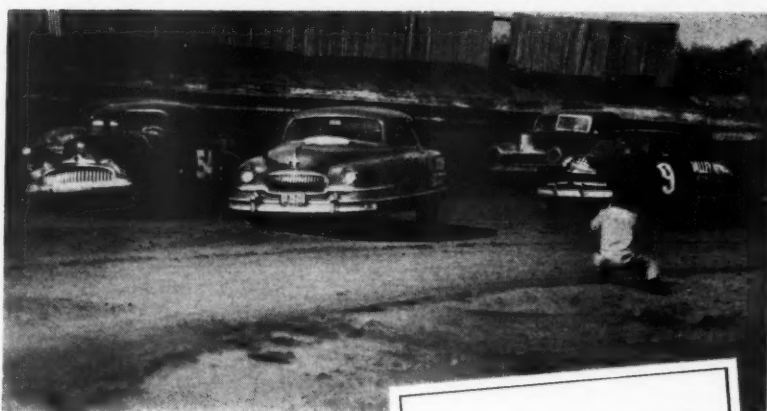
MUCH reworked '38 Ford sedan includes Lincoln Zephyr V-12 engine. Overall height is 56 ins. Owned by Dan Knezevich, Pueblo, Colorado



GENUINE zebra skin top boot and sun visors distinguish the '49 Buick Super of Bruce Johnston, St. Paul, Minnesota. Cad fins were added

FROM a '35 Chevy 4-door, Jim Bangesser, Lisle, Illinois, built this most original and sporty creation. Rear deck is trunk from '36 Ford sedan

July 1951



GRANT'S SCOOPING ACTION PROVEN AGAIN IN STOCK CAR RACES

"Smoothest and best performance I ever saw"—Just one of the many lavish praises used to describe the action of Grant Rings. The self flushing-scooping action, a unique feature of the Grant Ring, assures a constant flow of oil back to the crankcase. This, combined with quality workmanship go to make up one of the world's finest Piston Rings.

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GERRY GRANT, GRANT AND GRANT-
-241 NORTH WESTMORELAND AVE. LOSA
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PHOENIX TODAY IN MY 1951 HUDSON HORNET. YOUR
GRANT PISTON RINGS PERFORMED PERFECTLY AS
ALWAYS. THIS MAKES 3 WINS OUT OF 4 STARTS.
THANK YOU,

MARSHALL TEAGUE



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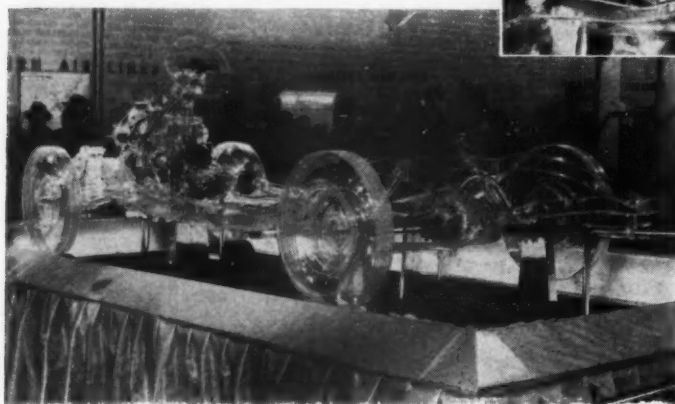
Spotlight on

DETROIT

V-6 ENGINE DEVELOPMENT . . . OHV FOUR-CYLINDER FORD . . . "ANNUAL WAGE" CRISIS . . .

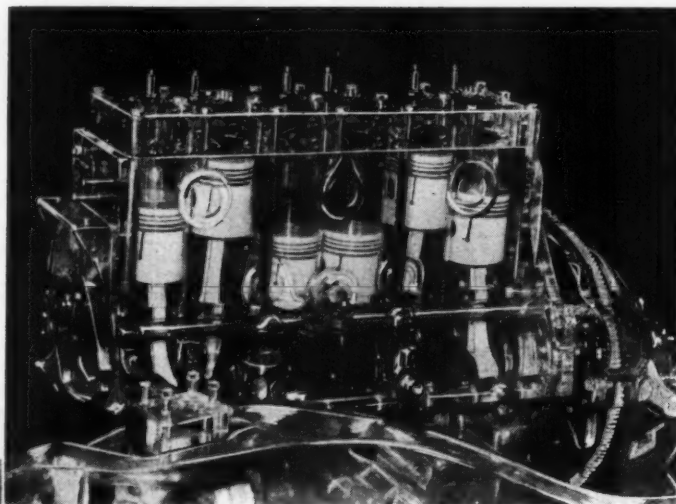
by Harry Cushing

DETROIT, MICHIGAN—An economic and social revolution is brewing in the Motor City. Make no mistake about the importance of events now shaping up for the auto industry in the field of labor-management relations, even though you see little publicity about them for months to come. They revolve around the UAW-CIO's long-time dream of a "Guaranteed Annual Wage" as a means of reassuring uninterrupted employment in normal times for its more than a million members. . . . The opening gun has been fired by the union, and during the next three and a half years it will press this campaign relentlessly. Actual nego-



tiations will start in 1955 when present contracts come up for renewal. Should this annual wage drive be successful it is likely to establish a new method of operation for manufacturers, change the car-buying practices of motorists, and eventually alter the daily lives and habits of Americans wherever they work or live. . . . The guaranteed annual wage implies strict regulation of employment, production and sales on an industry-wide basis through company and union agreements. It suggests that regardless of fluctuating demand, car output will be governed by quotas, possibly on a monthly basis, designed to spread manufacturing operations evenly through an entire year. To work effectively, however, car buyers would have to cooperate enthusiastically, gearing their purchases to production schedules rather than to the actual desire or need as of a given moment. The first step in

the UAW's campaign is expected momentarily. It will be a request for establishment of joint Labor-Management Study Commissions throughout the industry to investigate the problems involved in guaranteeing annual wages. Observers here believe these invitations will be rejected by auto company managements, who will point out that wages and employment cannot be guaranteed until sales are guaranteed from week-to-week. They will also remind the union that in normal years the industry is a seasonal business operation, subject to peaks and valleys on the sales charts, with the heaviest demand coming each Spring and severe declines in the Fall and Winter months. . . . As long ago as 1935 the industry shifted new model introductions from January 1 to late Summer and Fall in an effort to level out employment and spread pay checks over a greater portion of the work year. This

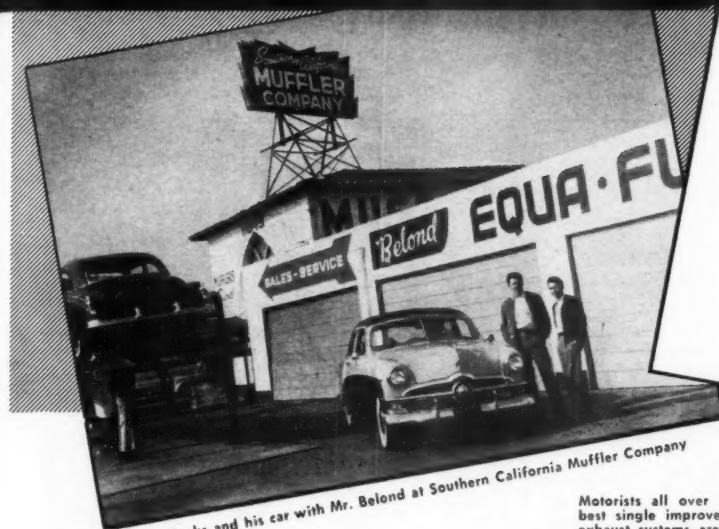


INTERNAL MYSTERIES of Plymouth engine and chassis have been laid bare in this faultless plastic model, result of 18 months' labor. Various parts are tinted with fluorescent pigment, show function of parts under ultra-violet light

move, coupled with improved manufacturing techniques, greatly reduced plant shutdown time due to model change over. Since the war, workers have had, in effect, an annual wage because 12 months a year have been needed to fulfill pent-up customer demand. So, the auto makers will point out to the Union that if a way could be found to continue guaranteeing insatiable markets, then an annual wage guarantee would be possible. . . . The Union, however, is looking ahead to resumption of more normal production and distribution practices as demand for cars slackens, a condition which may not be too far away. They fear that once again there will be unemployment periods of varying duration between model runs. They will counter management with the simple assertion that workers must eat, be housed, and clothe their families 12 months a year. This discussion is fundamental to the growth of America's economic and social structure. Its solution may go a long way toward shaping the automotive industry's and the nation's future for generations to come.

NEW CARS FOR 1951: Ford is introducing to the American market a new,
(Continued on page thirty-eight)

THE Belond EQUA-FLOW Exhaust System Pleases Henry Banks (1950 AAA NATIONAL CHAMPION)



Banks and his car with Mr. Belond at Southern California Muffler Company

NOW AVAILABLE FOR:

	COMPLETE WITH MELLO-TONE MUFFLERS	LESS MUFFLERS
• FORD V8 OR MERCURY 1935-51	52.50	44.50
• OLDSMOBILE 88 & 98 (Quite Loud)	74.50	67.50
1949-51 with Hydramatic (Will not fit cars with Standard Transmission)		
• SMALL LINCOLN V8 1949-51 with Hydramatic (Will not fit cars with Standard Transmission)	74.50	67.50

Other Belond Products

MELLO-TONE SINGLE MUFFLERS

1935-41 V8	\$5.70
1942-51 V8	6.60
1939-41 Merc.	5.70
1942-51 Merc.	6.60



1937-51 Chev.	\$5.70
1936-41 Plym.	5.70
1942-48 Plym.	6.60
1937-48 Buick	7.20

These Mufflers are straight through steel packed mufflers and are designed to give a deep Mello-Tone Exhaust sound to all cars. Made of heavy gauge steel, they are blow out proof. Use of these mufflers tends to reduce back pressure to some extent even when used singly.

MELLO-TONE DUAL MUFFLER SETS

1935-48 Ford V8	\$23.00
1949-51 Ford V8	27.00
1939-48 Mercury	23.00
1949-51 Mercury	25.00
1949-50 Oldsmobile 88 & 98	34.50

1937-50 Chevrolet	\$32.50
Plus Deposit on Manifold	
1942-50 Dodge-Plymouth	32.50
Plus Deposit on Manifold	
1949-51 Lincoln V8 (With Hyd.)	32.50

Mello-Tone Dual Muffler Sets are provided for those who wish to reduce back pressure as much as is possible without the addition of Exhaust Headers. Dual Muffler Sets produce satisfactory results at a low cost and can be used in conjunction with Exhaust Headers which may be added at any time.

HENRY BANKS



TOTAL CHAMPION 817 S. LAUREL ST. COMPTON, CALIF.

February 6, 1951

Mr. J. S. Belond
Southern California Muffler Co.
11039 W. Washington Blvd.

Dear Sandy:

I have driven my Ford Crestliner several hundred miles now since you installed your Equa-Flow exhaust system. I am very pleased with the results. Congratulations on a very neat and efficient installation.

My engine is much more flexible and has that pleasing mellow tone. I haven't had a chance to check the mileage yet since making the installation but when I do I am sure there will be a substantial increase.

The Belond system is in my estimation the best single improvement that can be made in a Ford or Mercury.

Sincerely yours,

Henry Banks

Motorists all over America are acclaiming the BELOND EQUA-FLOW Exhaust System as the best single improvement available for automobiles equipped with a V8 engine. The standard exhaust systems are too small in capacity and the exhaust gases are forced to make restricted turns. In some cases, all of the exhaust from the left side of the engine must go forward, cross over and pass through the right side exhaust manifold before starting toward the muffler and the rear of the car. In most cases, the standard single muffler does not have enough capacity to handle the full volume of exhaust from the engine.

These conditions create exhaust back pressure, which means that valuable horsepower is consumed in forcing the exhaust through the manifolds and single muffler. When this pressure is relieved, that horsepower becomes available to the rear wheels.

By reducing exhaust back pressure to an absolute minimum, BELOND EQUA-FLOW Exhaust System actually increases the horsepower output, resulting in improved speed, performance and efficiency. The EQUA-FLOW Exhaust Systems are available complete with all parts necessary for installation including Mello-Tone Mufflers or with everything but the Mufflers for the convenience of those who desire the efficiency of the EQUA-FLOW Exhaust System but who do not want the tone. Standard quiet mufflers may then be installed. This system is almost as effective as using the straight through mufflers because each stock muffler has enough capacity to pass the exhaust from four cylinders without creating excessive back pressure.

The stock muffler system is the most suitable for Oldsmobiles, however, on Fords, Mercurys and Lincolns, it is a matter of individual choice.

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YOU—CLIP AND MAIL THIS COUPON

Southern California MUFFLER COMPANY

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Please Ship at Once:

EQUA-FLOW Exhaust Systems Complete with Mello-Tone Mufflers
FORD V8 or MERCURY, 52.50 ☐ OLDSMOBILE 88 & 98, 74.50 ☐
LINCOLN V8 with Hydramatic, 74.50 ☐

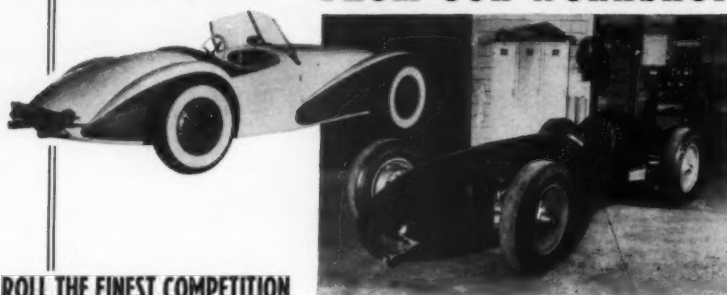
EQUA-FLOW Exhaust Systems Less Mufflers
(For use with stock mufflers)
FORD V8 or MERCURY, 44.50 ☐ OLDSMOBILE 88 & 98, 67.50 ☐
LINCOLN V8 with Hydramatic, 67.50 ☐

☐ Single Muffler S ☐ Dual Muffler Set S
All prices f.o.b. Culver City, if you live in Calif., add 3% sales tax.
☐ Check or money order in full enclosed.
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My Car Is: _____ Kind of Transmission
(very important) _____

Make _____ Year _____ Model _____ Body Style _____
Name _____ Address _____
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covers all phases.

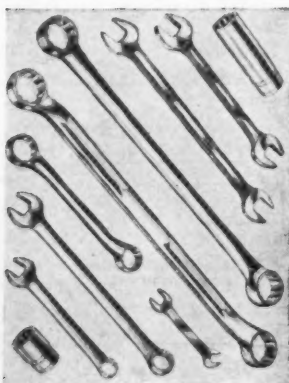
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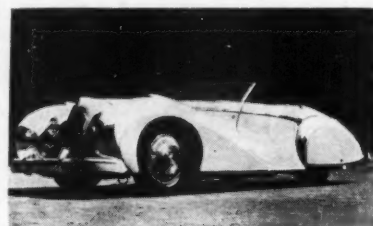
For Servicing All Foreign-Make Cars

Satisfactory servicing and repair of a foreign-make car can only be secured with *wrenches that fit!* From Snap-on, leading manufacturers of quality automotive service tools, you can get wrenches and sockets in Whitworth sizes, 7BA, .172" to 1.670" (for English cars). In metric sizes (for all other foreign makes) 4 mm. to 32 mm. Available direct from factory only. Write for free literature.

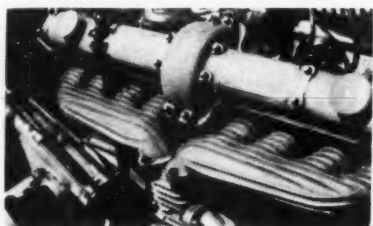
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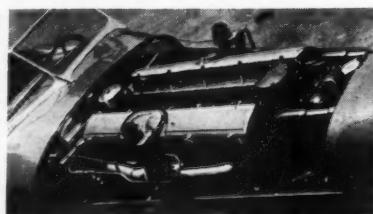
1. This well-known Cadillac was built by
a. Barris c. Saatchik
b. Chapron d. Fleetwood



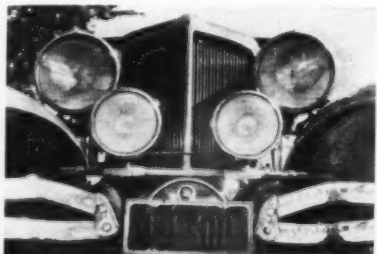
2. This Alfa-Romeo engine is
a. V-8 c. A dual oh cam layout
b. Air-cooled d. Two-stage blown



3. The famous winner of
a. Darlington "500" c. Watkins Glen
b. Carrera d. Daytona Speed Trials
Panamericana



4. This sporty job is powered by
a. Cad V-16 c. Two Allison
b. Hispano V-12 d. Two-port Riley



5. This is the graceful front of a
a. Front-drive Miller c. Hollywood Graham
b. Chrysler Imperial d. '31 Cord

Answers on Page Forty-three

SOUND OFF!

NOTE: If you have complaints about—or suggestions for improvement of your car, SOUND OFF! Address MOTOR TREND, 1015 So. La Cienega Blvd., Los Angeles 35, Calif.

★ ★ ★

... I own a 1949 Mercury Sport Sedan. I have no complaints except the usual ignition "miss" and that was fixed. Oh yes, the clock stopped once.

I have no water leaks, no oil consumption, 20 mpg on 70 to 80 mph trips, 16 to 18 mph around town. ...

Ed Webster
Tucson, Arizona

★ ★ ★

... ON THE ROAD my 1950 Olds 88 gets 20 to 21 mpg at 65 mph. I have around 30,000 miles on it, hard miles I might say, and haven't touched the engine. I burn regular gas although with ethyl it has more pickup. My biggest complaint is the U.S. Royal air ride tires that came with the car. They were bald at 15,000 miles. ...

Arnold Beswick
Morrison, Illinois

★ ★ ★

THE ENGINE of my 1950 Plymouth has a "thump" which their factory service organization refers to vaguely as a "torque knock."

They assure me that it is not detrimental, that most Plymouths have it, and that nothing can be done about it. However, it makes an otherwise fine car sound like something from the back row of a used car lot. ...

Richard D. Meyer
Van Nuys, California

★ ★ ★

I OWN a 1950 Jaguar XK 120. I have installed a radio and heater for comfort. My main complaint is the aluminum doors. People like to lean over and look in, resulting in knee marks in the upper part of the door. I am six foot two and weigh 250 lbs. After setting the Jag seats back into the batteries, I feel very comfortable.

Jack P. Begy
Buffalo, New York

★ ★ ★

I BOUGHT my Henry J "4" three months ago and now have 5500 miles on it including a 2000 mile trip. A careful mileage check on the trip showed 29.8 mpg, cruising at 60 mph on the open road. Used no oil, but made a normal change during the trip.

My car has lots of pep, jumps to 70 easily while cruising at 60. There are not many highways in the east where you can drive faster. Car holds the road well, has a quick steering (which I like), and has good cornering qualities. The Henry J has turned out to be more of a car than I had expected. I am proud and pleased with my purchase.

William K. Heron
Rochester, New York

★ ★ ★

I HAVE some gripes on the Olds 88. ... The steering is "lousy" and I mean in every respect, from the position of the steering wheel to the front main wheels. I feel every bump in the steering wheel (all through its 4½ turns). The car was literally thrown together at the factory (Flint, Mich.) [The] dealer painted the car for free because primer was showing in five places. Each tire carries over 1000 lbs. (3920 lbs. empty). I don't like coil spring suspension in rear, causes too much play between transmission and differential.

Despite the above gripes, I believe I am as well satisfied with this car as I would be with any '50-'51 stock car. It does have an outstanding engine, very smooth at all speeds.

Walt Tubb
Las Vegas, Nev.



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3633 GAGE AVENUE
BELL 5, CALIFORNIA



YOU DON'T need an XK-120 to have fun and sport on wheels. The rugged, roadworthy four-wheel-drive Jeep, with its unique qualifications for plowing through ultra-tough terrain, can be as much a challenge to driving skill as more orthodox road-racers.

All this and more was proved by 425 hardy adventurers who converged on Hemet, California, to participate in the third annual "DeAnza Trail Jeep Cavalcade." The Jeepers followed the early Spanish explorer's tracks from Hemet to Borrego Springs—a short hop which has only one drawback: there's no road. Its 60 miles of swamp, mountain, desert, and rock are grounds for one of the most grueling two-day rallies anywhere.

The 174 Jeeps were assembled for an early-morning start. Some, like true high-performance iron, had been towed to the scene by conventional cars. Many had owner-improvements, ranging from larger



END OF the trail for the family car was the open road for 174 Jeeps which massed at a wide spot called Terwilliger on desert's edge



LEAVING THE luxury of a solitary cowpath, Jeeps took to rocky river bottom like ducks to water, scrambled along in compound low



NEXT HAZARD on the trackless route was a stretch of jungle and noisome swamp—a challenge that failed to trap one Four Wheel Drive



JUST AFTER sunrise, with shadows still low, second day's journey gets under way, heading toward scorching Badlands of Anza State Park



WHAT DOES a desert oasis look like? This is the sandy paradise of Seventeen Palms, only puddle of muddy water within scores of miles



SPORTS CAR driver at speed: the owner of this much-modified and super-tuned wagon owns an XK-120, finds equal pleasure in both cars

JEEP GYMKHANA

Text and Photos by Ernest Reshovsky

tires and fuel tanks to modified engines and radio transmitters. The drivers, well-versed in cross-country cowtrailing, carried tents, sleeping bags, spades, tow chains, snake bite kits, were ready for anything.

There was easy going along the highway—for the first five miles. After that, pavement ended and the cars trekked along for a couple of miles of graded road. Then a rough trail took over and the Jeeps were on their own. They descended the snaking path to a rock-strewn, steep-walled canyon. At this point the trail ended, and the only drivable path was down the narrow center of a river bed. The travelers picked

their way over boulders and through water, their Jeeps often in "low-low," their speed a maximum 7-10 mph. At the end of the canyon they struck out on another cowtrail, one running through a jungle-like growth along another stream bed. By the time the 100th FWD had run through the black mud, decayed vegetation in the water was churned into a 2½ ft.-deep bog.

At the end of the first day's drive the Jeepers had a barbecue dinner, danced, pitched their tents, unrolled sleeping gear, and turned in under the desert stars.

Next morning drivers, co-pilots, and back-seat advisors set off to explore Anza

Desert State Park, wound their way through the badlands sand, where even FWDs had to be pushed, and finally to the table-land overlooking California's magnificent Painted Desert—a panorama seldom seen, since only four-wheel-drive vehicles can reach the almost inaccessible look-out point.

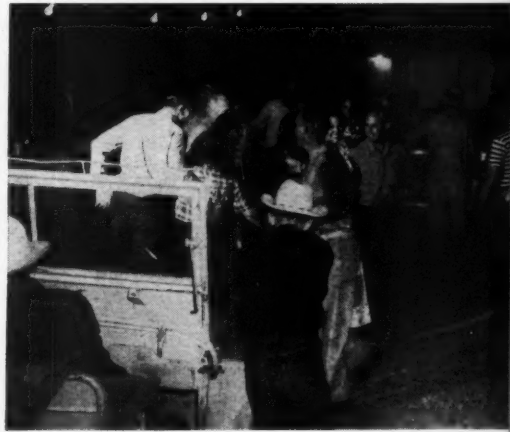
There was more desert driving, and then Highway 99, the end of the trek, came into sight. Faces and windshields were caked with dust and dirt, but the Jeeps had made it, and their drivers agreed they'll be back next year to do it again. Do you own a Jeep? Try to be there then!



SPIRITS WERE high after the first obstacles had been overcome, a lunch stop was made in desert, tall tales told, strong coffee brewed



FIVE MEN in an ex-Air Force Jeep took the hardest short-cut every time, bounced down this lava incline at 25 mph, had the most fun



BORREGO SPRINGS was first night's destination. Here, after a day of pounding hard seats, there was square dancing before turning in



PUSHING THROUGH the Badlands was literally the case—and at 110°! It's a tribute to FWD that only two of the cars bogged down here



CALIFORNIA'S PAINTED Desert has been seen by few from its upper rim. They get there by FWD Jeep—only car that can make the grade



MISSION FULFILLED: bruises and sunburn were trophies of the Jeep gymkhana—more important was rediscovery of adventure at the wheel

Swordplay in Detroit



EXCALIBUR SLASHES away all conventional grille work, "an expensive nuisance" in Stevens' words. "They are hard to polish and wash, costly to replace after a collision, are non-functional ornaments of the past." Two air inlets are provided behind the massive bumper which focalizes in a heavy Vee, symbolic of the V-8 engine. The rub rail—protective side beading—has been moved up nearly to the car's waist, body is cut inward to reduce area of scrape. Decorative chrome cuff protects bottom of body



TO KEEP tooling costs at a minimum, all but three of Excalibur's body panels are interchangeable between the hardtop and convertible models, these panels being top, doors. Clean, simple design is maintained at the rear by incorporating rear lights, trunk lock, and fuel intake in extensions of the rub rails. Thanks to an overhang which is frankly distorted in this perspective view, mammoth luggage capacity of 35 cu. ft. is provided. No specifications have been laid down for the car's power source

EXCALIBUR, the name of King Arthur's mighty sword, is also the name of an "automobile of tomorrow" which is one firm's obvious reply to GM's Le Sabre.

The firm is Brooks Stevens Associates, long connected with Willys-Overland and, noted in the industry for its creation of the Jeepster. While realizing that Le Sabre is not an executive's hot rod but actually a well-planned piece of test equipment, the Stevens organization has proceeded to base its thrust into future design upon the sound principles of safety, economy, clean-cut lines. Stevens

himself says, "People like the racy lines and open air driving of convertibles and sports cars. But the popular American car will continue to meet the demands of normal dimensions, normal seating capacity, and maximum safety features."

Despite their sporty styling, these cars are largely conventional in their measurements. The sedan will be not less than 60 ins. from road to roof, with a 118 to 120 in. wheelbase and an overall length of 206 ins. Width is 72 ins. and it measures about 37 ins. to the cowl's peak. Weight will be about 3200 lbs. Fenders have been depressed to the legal minimum

of present headlight height and the hood has been tapered down, making for a better view of the road.

One of Excalibur's most interesting innovations is the movement of the corner pillar to a point just aft of the no-draft window, making for terrific visibility. The doors open around the no-draft window instead of including it.

Excalibur is a car of the future designed with an eye on tooling and production costs, as well as on the needs and tastes of the average American motorist, therefore stands a good chance of seeing the light of day.

THE REBUILT ENGINE RACKET

by E. A. Jaderquist

THIS USED to be a nice, clean little business," an anonymous builder said bitterly. He stabbed at the classified section of the newspaper with his cigar.

"Look! Look at these prices!" Rebuilt Ford engines were advertised for \$79.50 in one column, \$59.25 in another, \$99.50 in a third. "I build these things and I know what they cost," he snapped, brushing the newspaper off his desk, "and I know that no retail exchange shop can live on prices like that."

This particular man, now a wholesale builder of rebuilt engines, once operated a retail shop. When the fast-buck hustlers moved into the business shortly after the war, he quietly withdrew from competition by closing his retail branch. That was four years ago. Now, with practical cynicism, he sells wholesale rebuilt engines to one of the firms that drove him out of business.

If you haven't bought a rebuilt engine yet, you probably will before the present war is over. The chassis and body of your automobile are built to outlast two engines, given proper care. The average engine will take only one ring-and-valve job before it needs extensive repairs. When your engine begins to nudge the 100,000-mile mark, it is almost certain that all moving parts, friction and bearing surfaces, are seriously worn. And at that point you will begin to shop around for another engine.

Today, in most parts of the United States, the rebuilt-engine rackets are in their infancy. Only the Los Angeles climate seems to have been favorable toward the establishment and growth of engine-exchange shops which depend on misleading advertising and dubious, high-pressure tactics for survival and profit. The files of the Los Angeles Better Business Bureau are stuffed with the complaints of unhappy customers who have learned to their sorrow that quality cannot be bought at cut-rate prices.

One customer, a disabled veteran, brought his Chevrolet truck in for a special \$117.00 exchange engine. When he returned to pay the bill and drive away, he was met by the manager with a smile and a request for \$249.50. After his temper had cooled, the vet discovered that he had a simple choice—pay the bill or surrender his truck. He had no legal evidence. But he wasn't through, yet. To pay the swollen account, he went to a finance company recommended by the shop. There, he paid \$80.00 more to finance the total for 15 months, plus \$47.00 for an insurance policy protecting only the shop.



This veteran, and the majority of other victims, have quickly discovered that the engine-exchange firms operate so smoothly that no legal action is feasible. Only an expensive, carefully planned campaign, using planted cars and professional investigators, will produce the kind of evidence that convinces judges and juries. Meanwhile, the hundreds of thousands of honest mechanics and garage owners, along with the wholesale engine rebuilders who are, for the most part, thoroughly respectable, will reap the public distrust planted by unscrupulous operators.

The standard pattern, followed by most present-day sharks, can be detected easily. There are minor shifts in the tactics used against the customer, but it has not yet been necessary to alter the master form drastically. Briefly, here is what happens.

A sensational advertisement shrieks something like "Factory-rebuilt motors, completely installed—only \$99.50 (Ford 85). New-motor guarantee. Courtesy car. No money down, up to 15 months to pay." Naturally, the low-income citizen with a limping '40 Ford is intrigued. What he knows about engines and mechanics could be tattooed on a gnat. With blind faith he drives to the address in the advertisement where he is greeted by a salesman.

The salesman probably works on commission and he is not an idiot. He sizes up the customer quickly and moves in for the kill. Perhaps the '40 Ford really needs a rebuilt engine anyway. For the purpose of this example, we'll assume that it does.

The first step is to get the customer in the office, away from his car. In the more frantic joints, mechanics begin loosening the heads before the customer is out of sight. Meanwhile, the salesman is trying to talk the customer into buying a better engine than the one advertised for \$99.50. Sometimes it develops that the advertised Ford engine fits only '32-'36 models and

a more expensive engine is required for later models. The salesman will always try to sell a more expensive engine but he will almost always give in to the customer's demand for the advertised price. The important objective is still ahead.

If, during this talk, the customer decides he wants to back out, he may find that his car has already been partly dismantled. If he wants to drive out, the shop will charge him to put it back together. In case he wants to get tough, there are always witnesses to remember that there was a verbal agreement to start work right away. Only the rare customer tries to back out at this point.

Ordinarily, the salesman convinces the prospect. Take our low-income citizen with the '40 Ford. He's easy to convince. When he sees the salesman pull out an order form, write "one rebuilt engine ('40 Ford)—\$99.50" he feels that the situation is going along nicely. The salesman asks him to sign the order and he complies. After a pleasant few words he walks out, ready to return for his '40 Ford the next afternoon. Unwittingly, the citizen has committed himself irrevocably.

That work order, offered so casually for signature, is the joker in the deck. The next time the customer sees it, the original \$99.50 entry will be buried in a mass of additional charges, all entered safely over his signature.

That evening, the customer is sitting at home when the telephone rings. A voice says, "I am the mechanic at . . . garage. Say, Mr. . . . we got your engine out today and there are a few things that should be taken care of right away. The clutch . . ."

Dazed, the customer listens. This is the first pitch for extra work. If he balks, there will be more telephone calls and finally a summons to appear at the garage

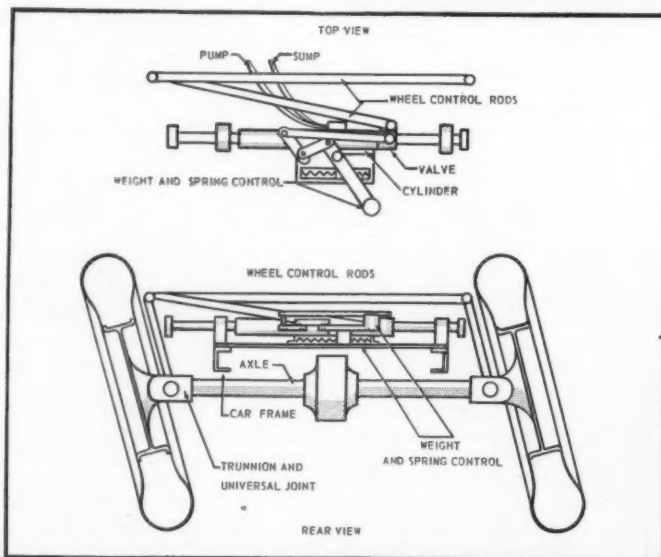
(Continued on page forty-two)



CRAMER XK-120 (above) was a top car at Palm Springs, Forbes-Robinson up. Engine is out of Hill's Pebble Beach-winning Jag and is highly modified. Displacement has been upped from stock 3½ litres (214 cu. ins.) to 3.8 litres (232 cu. ins.) by boring. Porting, Scintilla magneto, and Winfield camshafts have pushed bhp to 200

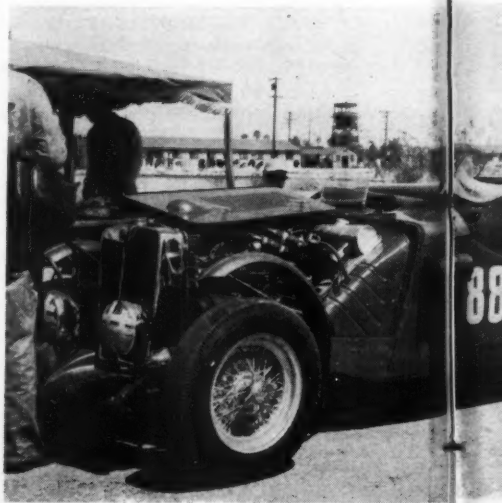
NEW YORK entry and one of the season's most spectacular performers is the Auto-Banker, designed by J. D. Altemus and Grancor-equipped. The car's impressiveness lies in its method of bracing itself automatically against centrifugal thrust in cornering by canting its rear wheels. The bizarre broken axle effect is shown at right

PHOTOS BY BORGESON AND RICKMAN



SECRET OF Altemus Auto-Banker's cornering success is revealed in this diagram. An engine-driven pump maintains hydraulic pressure which actuates the banking system via spring-loaded pendulum which responds to centrifugal force. This design is claimed to reduce tire-scrub to a minimum, is applicable to passenger cars, trucks; may be used commercially

BLOWN MG-TC (right) of John Edgar uses an elaborate system for cooling highly-compressed fuel-air mixture. Outercooler, mounted on side of body, is used for cooling the fluid which, in turn, keeps inlet temperature low in spite of 12 lbs. boost. No. 88, Jack McAfee at the wheel, placed an easy fifth at Palm Springs



on **Premiere**

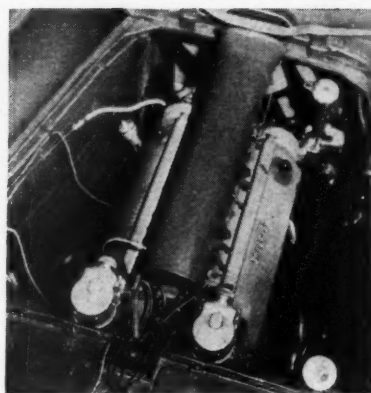
"DADDY, GET this for me," said stock car champ Johnny Mantz, after a few trial laps in Jim Kimberly's Ferrari, winner at Palm Springs. The car's road holding qualities are as much an asset as its potent engine. Suspension layout is extremely simple: traditional semi-elliptics at the rear, transverse leaf independent in front



PALM SPRINGS Road Race was the first major event of the American sports car season. This was its second annual installment and, carrying experimental AAA sanction, the desert race attracted top entries from all parts of the country, even from Europe. The machinery on hand at Palm Springs represented the calibre of equipment that will vie for honors this year: equipment imported in a state of perfect finish, equipment hand-made at home in an effort to fill the gap that—as yet—holds no interest for America's commercial manufacturers. The cars pictured on these pages point up current trends—the quest for better lap times through finer machinery, supercharging, increased displacement, improved braking, faster cornering. Sports car racing here is rapidly coming of age, as these cars testify. They are creating a new sport on home ground—watch them perform across the nation this season!



JOHN EDGAR'S fabulous No. 88 blown MG-TC is already famous for its phenomenal output of 148 bhp (MOTOR TREND, June '51). Feature not previously described is the car's highly improved braking system. Almost entire brake assembly is of aluminum and 12-in. drums provide three times stock braking area



FERRARI ENGINE is the most potent and successful sports car power unit being made today, comes in various sizes, up to 250 cu. ins. (4100 cc). This is the 12-cyl., 122 cu. in. (two litre) engine of the Kimberly machine, develops 140 bhp at 7400 rpm with three Weber carbs, no supercharger, has remarkable reliability



PHIL HILL'S 2.9-litre (177 cu. in.) "Mille Miglia" Alfa Romeo is one of most powerful road racing machines in Western sports car competition. Its twin camshaft, twin supercharger straight eight engine develops 200 bhp with 8:1 compression ratio and 12 lbs boost, can do 130 mph

LINCOLN MOTOR TRIAL



LARGE CARB housing (above), provides for air circulation around float chamber, prevents over-heating of fuel. Viland verified small jet size

INSTRUMENTS ARE positioned faultlessly (left), aircraft-type levers control air conditioning system. Accurate speedometer was a surprise

RUBBER SMOKE during braking test (below)—note how body rolls forward on springs under powerful deceleration. Brake fade was slight

NOTE: In future issues of MOTOR TREND Griff Borgeson, along with Associate Editor Dick van Osten, will be conducting the majority of our Motor Trials. Griff's many years of automotive background, including several years of field work as a test engineer, give him the objective viewpoint so necessary to the forming of responsible judgments.—Editor.

IN A WORLD seething with radical changes in automotive design, Lincoln continues with its big, traditional L-head power plant, and with it, against cars powered by admittedly more efficient engines, won this year's Mobilgas Economy Run. Trade scuttlebutt has it that a rival manufacturer with a super-economical design was so certain of winning the Run that thousands of dollars were spent on preparing a publicity campaign based on his make's win. But Lincoln did it. How?

There was the personal factor, of course—the skill of winning driver Les Viland. But what intrigued us most (“us” being MOTOR TREND Research, Dick van Osten and me) was the Economy Run Lincoln's gearing—final drive of 3.31 in conventional, 2.39 in overdrive. Could a heavy car like the Lincoln, geared so high, actually get out of its own way?

The national limelight was on Lincoln, there were questions to be answered, and we called Inglewood Lincoln-Mercury dealer Bob Estes, sponsor of the victorious car. We asked for an exact duplicate of the Economy Run winner, and Bob replied, “I’ll go you one better than that. You can have our practice machine—the one we use for test runs to the Grand Canyon.”

Frankly, we expected little performance from this car other than good economy at

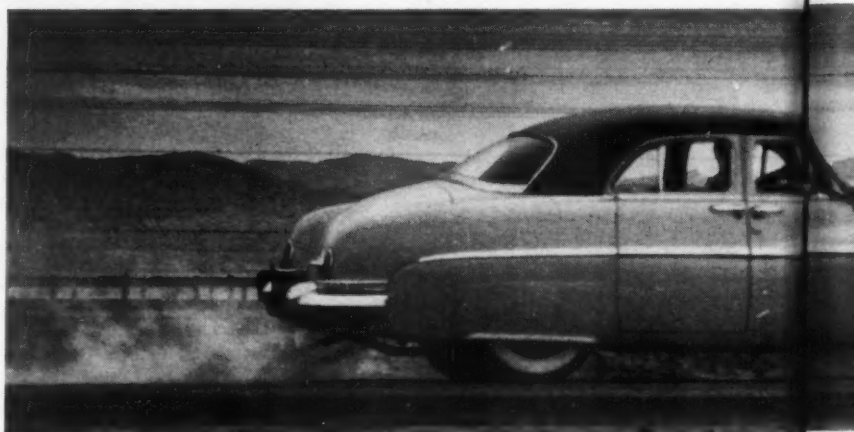
steady speeds. But after almost a thousand miles of driving the machine through traffic, deserts, mountains, at every speed and under almost every road condition, it became apparent that the Lincoln is one of the best cars on the market today, in every way. Here's the story.

Test Report

FUEL CONSUMPTION: Our test car, exact duplicate of the Sweepstakes winner, was equipped with a high-speed rear axle ratio that we'll deal with later, and with .053-in. carburetor jets, which are specified by the factory for cars operating at altitudes of about 5000 feet. Our fuel consumption figures tallied pretty well with the 25.448 mpg average made by Viland's winning car. The average of our own figures for a steady 30 and a steady 45 mph in overdrive was 25.7 mpg. Just to see how much help the force of gravity could give, we took readings on long

downgrades. At a steady 60 mph the best we could get was 31 mpg; at a steady 30, 41.5 mpg. This is pretty darned good economy for a 337 cu. in. L-head engine, but if you want to get it when you buy your next Lincoln be sure to specify Grand Canyon Run jets and gearing.

TOP SPEED: This was one of the big surprises of several days of raking the Lincoln over the coals. Les Viland had told us that we could expect to get about 96 mph from the car if we'd really let her unwind. If the carb had been fitted with sea level-specified .055 jets, another five mph or so would have been on tap. Our test strip is about four miles long and within this distance, in spite of the extreme high-speed gear and without overrunning our shut-off points, we took the Lincoln through for a fastest run of 100.67 mph, averaged 97.08 over four runs. Even at full throttle there was no perceptible engine vibration and little noise. The car



BORGESON TESTS AMERICA'S ECONOMY CHAMP

simply opens up to full bore, stays there deliberately and happily, decelerates with equal silence and smoothness.

ACCELERATION: The 3.31 "Plains" rear axle ratio is upped to the remarkably close figure of 2.39:1 in OD top gear. There's a widespread suspicion that any car equipped with such a gear can't pull the skin off a rice pudding. Proof of the pudding comes in driving the car—proof that engine and gearing are a match for each other. Further proof can be found in the Table of Performance; the Lincoln's clocked time over the standing quarter was good. Rear axle ratios of 3.91 and 4.27 are optionally available for these cars and will give much livelier acceleration, will make the engine turn over more, use more gas. But in the mountains

and in the most dog-eat-dog traffic we found the 3.31 rear end to be fully adequate—in fact, more than equal to most cars on the getaway.

TRANSMISSION: The '51 Lincoln line comes fitted with Hydra-Matic transmission, unless otherwise specified. The Sweepstakes winner was equipped with a standard hand shift gearbox and with Borg-Warner overdrive. This is the same familiar unit which has been winning the public since 1934, has the customary "kickdown" feature for extra steam when you want it. And at speeds below the OD cut-in point—around 25 mph in the Economy Run car—the free-wheeling action of the OD unit permits all gear-shifting to be done without use of the clutch—a real convenience in heavy traffic. Engine compression is available for braking throughout the conventional range, and, in OD, above the cut-in point. To get a fuller picture of the current Lincoln line, we ran a few tests on one of the Hydra-Matic jobs. Automatic shifting was a blessing in traffic but our vote goes to the good old quick-acting clutch and the increased economy and control that go with it.

STEERING AND RIDE: We averaged 45 mph over 40 miles of washboard road, and the only vibration noticeable was that which travelled up the steering column. Comfort of the Lincoln is terrific, but you pay a price for it: squishy 8.00 x 15 tires that shriek in agony during even gentle low-speed cornering. This is a typical engineering compromise, a case of not being able to have your cake and eat it too. There's another compromise in the steering, where the popular 5½ turns from lock to lock is used. It's a long way to have to spin the wheel, especially at speed, when split-seconds count. We'd like this car with power steering and about half as many turns required of the wheel. Some American production cars today have rock-steady

steering when cornering at high speed, but Lincoln is not one of them. Alertness and correction are required to keep the car in a given groove.

BODY AND INTERIOR: The parts of the Lincoln that meet the public eye are as straightforward and refined as the sound, unspectacular engine-room scene about to be described. One becomes so accustomed to sham vents and meaningless tinsel on current models that at first sight the Lincoln seems plain, almost austere. Our opinion is that the Lincoln is engineered as well as styled, and in good taste. Everything is done properly; the little things are right. Window cranks on the driver's side are laid out so that you don't bark your knuckles on the steering wheel; your arms really relax on the armrests; hands rest comfortably on the doorhandles, and these are designed not to hook clothing.

The interior is spacious, provides excellent comfort for six passengers, is upholstered in rich but restrained nylon and vinyl leather. On freezing desert nights or blazing desert days, the car's ventilating system gave pin-point temperature control. The exterior is handsome and fine, without screaming its price tag to the world. The bumpers are perhaps the most safe and substantial in the field, and chrome is used within nice limits. Fiberglass insulation extends from the front floorboard to top of cowl and over the inside of the entire top, adding a final, nice touch to passenger comfort.

ENGINE: When Viland delivered the Economy Run car to my door I had my pet vintage machine—a 1928 Lincoln touring car—out to meet its newest descendant. The 23-year-old job still goes like a bomb, and Les went over it carefully while I checked myself out on the new car. We talked about the long tradition of Lincoln quality, and about the most significant point of all today, Ford's

(Continued on page thirty-five)



BOTH LINCOLN'S visibility and generous luggage space are tops, bumpers extremely rugged

VILAND, BORGESON, and two cars which testify to Lincoln's almost 30 years of V-8 experience

PHOTOS BY E. RICKMAN



RESEARCH...


INVESTMENT IN TOMORROW

by Harry Cushing

HOW is an automobile made? Well, engineers and their associates work out the design, machine operators fabricate the parts, men on the assembly lines put them together. These obvious steps are known to everyone; what is seldom realized is the fabulously painstaking process of executing each element of each design in such a way that you, the car buyer, can be offered top quality at rock-bottom cost.

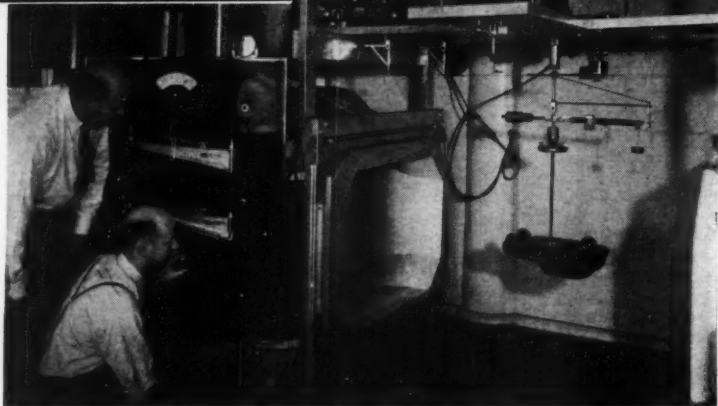
This never-ending process is carried out in the laboratories of nearly 200 automotive research organizations manned by better than 6000 technical experts. In addition to this huge force, every manufacturer maintains fleets of test cars in year round operation. Our automobile industry foots a \$100 million per year bill for this program, a modest price for the global supremacy of its products.

On these pages we have a behind-the-scenes view of the type of little-known activity that makes the modern car the safe, efficient, economical package that it is—a view which indicates the sweeping scope and delicate precision of American automotive research.



THE SHEET steel (above) that goes into your car's body is not a random selection. The final choice is made only after exhaustive corrosion tests have been made of all available alloys, the best identified and specified for actual use

WIND TUNNEL research (right) begins with super-precise study of tiny scale models, long before first full-size mockups are built. Thus wind drag and wind noise are minimized



NEW CARBURETOR designs don't reach the production stage until they've been subjected to every sort of simulated road test, including operation in sealed chambers under every likely extreme of atmospheric pressure (left)

AT FISHER Body labs, hidden air leaks in bodies are literally smoked out (right). Vacuum pump removes air from interior, gaps are easily detected where smoke is drawn inward

THIS CHRYSLER rig tortures crankshafts unmercifully. The two vertical steel members are actually the prongs of a giant tuning fork. Bolted to a crankshaft section, they are vibrated over long time periods, aid in the selection of extremely tough fatigue-resistant steels (below)



EVEN RUBBER is not a stable substance. This refrigerated unit (right) tells skid characteristics on surfaces wet, frozen, or dry. Tires of car on right skid less than those of car on left

COVER PICTURE for a science-fiction thriller is actually a sober Ford setup for the study of metal structure employing bombardment of the sample by ionized atoms in ray tube (left)



THIS GIGANTIC X-ray machine in the Ford Research Laboratories is one of the world's largest, reveals flaws in forgings and castings

GM TESTS its paints as carefully as its most critical alloys. Here, paint samples are hermetically sealed under glass filters to determine which of sun's rays cause most deterioration



THE ULTIMATE in cold weather testing is carried out in Ford labs. During the phase shown here, operating studies are made over an 18-hour period at -20° , develop climatic versatility

Twenty-three

SPORTS TRIAL



HOW COMPACT can you get? Engine and all possible auxiliaries have been engineered into remarkably small space. Darwin indicates conveniently located micrometer spark adjustment

ALPINE RALLY WINNER COMBINES COMFORT AND PERFORMANCE

by G. Thatcher Darwin

WITH A SPLENDID record of success in the Monte Carlo Rally, the International Alpine Trials and other rough and tumble long distance competitions, the Sunbeam-Talbot 90 has acquired a world wide reputation for stamina and reliability under extremely arduous conditions. It was therefore with keen anticipation that I accepted the assignment to test one of these cars. It was still more gratifying to learn that Mr. Timothy Rootes, Western Regional Director of Rootes, Ltd., manufacturers of the Sunbeam-Talbot, had kindly offered to place his personal car at the disposal of Motor Trend Research's staff for test purposes.

By the time I arrived at the Rootes Ltd. office in Beverly Hills I had built up a vivid mental picture of fur-coated adventurers battling their way over snow-choked Alpine passes, and I expected that such Homeric efforts would require a vehicle with all the gentle attributes of an army bulldozer. What a pleasant surprise to discover instead a trim convertible of modest overall dimensions, with very attractive lines highlighted by restrained use of chrome plating. The frontal aspect was refreshing for its simple dignity and the pastel blue paint job and white sidewall tires completed a most appealing ensemble.

Sliding in behind the wheel one finds the controls conveniently placed with the gearshift on the steering column and the emergency brake lever between the front seats. The steering wheel is at just the right angle and the cowl comes well back, bringing the instrument group close for easy reading. Radio controls are located centrally, and the air-conditioning group is under the main instrument panel. Electric windshield wipers are fitted and the front seat is adjustable fore and aft and for rake also.

The engine started at once and after a brief warm-up and some instructions about tire pressure from Mr. Rootes I drove away. The weather was warm and I was glad to have the top down. Rolling through dense Los Angeles traffic was easy. The quick ratio steering has good caster action, is positive and shows no noticeable inclination to understeer or oversteer. This feature, combined with excellent two-leading shoe hydraulic brakes and the four speed transmission, make the Sunbeam-Talbot a nimble performer in crowded streets. A car of such sensible overall dimensions has a tremendous advantage over bulkier models, and the Sunbeam certainly refutes all arguments that a car has to be heavy to be comfortable.

The independent front suspension gives a smooth ride combined with good stabil-

ity on corners. Over vicious washboard dirt roads, the suspension proved excellent, absorbing all shocks and permitting the car's occupants complete relaxation. Only later in the tests under very harsh cornering methods did the car show much tendency to lean. Normal bends on the highway are taken without slackening speed, and the car gives a very satisfying impression of being completely manageable.

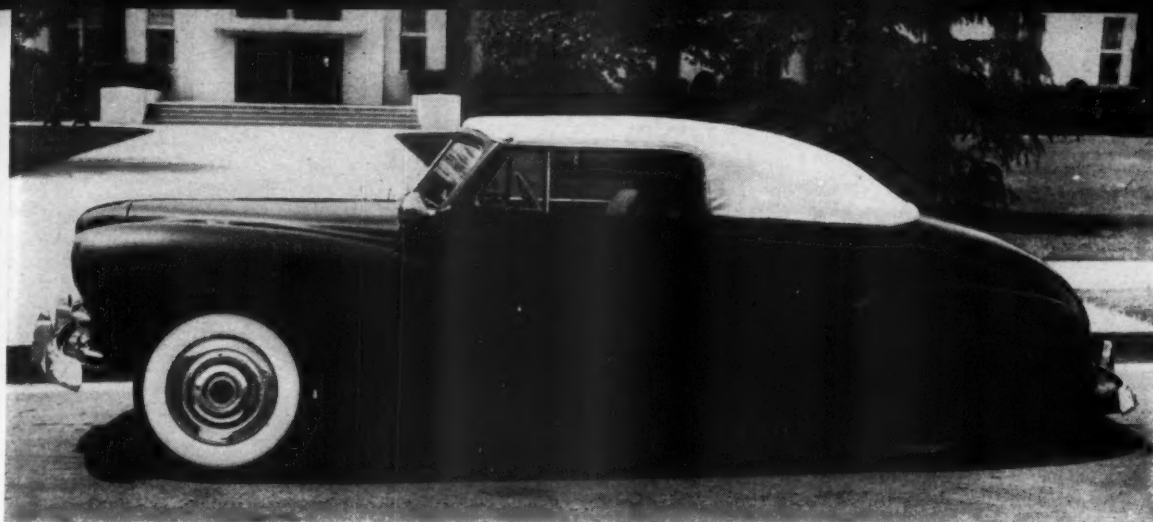
A point of criticism seems to be the transmission control. Even though the car tested had been driven several thousand miles, the control felt quite stiff going into and out of low gear. American gear-shift levers are spring or gravity loaded

(Continued on page thirty-three)



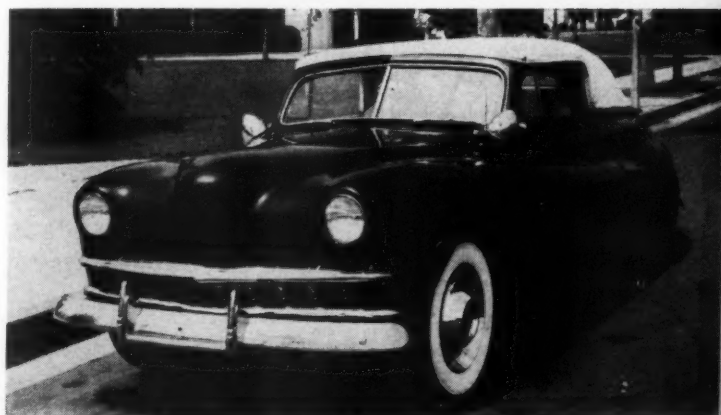
PHOTOS BY FELIX ZELENKA

ROUGHEST GOING failed to faze the solid Sunbeam. Versatile suspension, precision steering make for perfect control over any terrain



Customized Convertible is "The MERC of ZARO"

PHOTOS BY MARCIA CAMPBELL



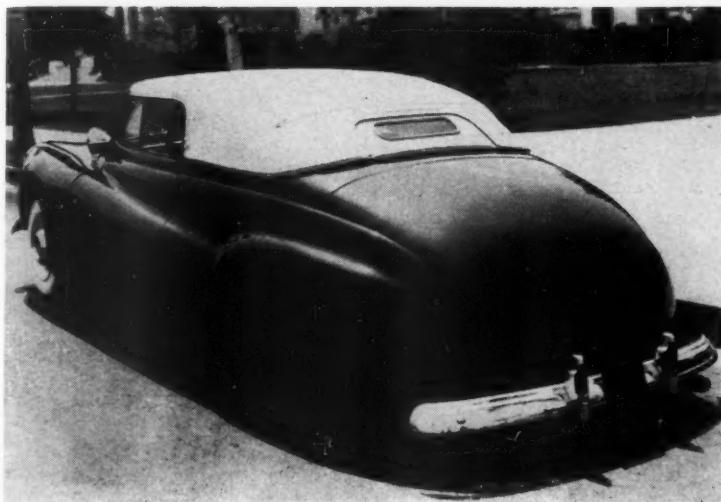
FRENCHED headlights and massive horizontal bars form an uncomplicated and pleasing frontal appearance. Small grille guards are used

SKEPTICS who wonder about the durability of customized bodies would do well to consider this example. Built almost three years ago by the Barris Kustom Shop, Lynwood, California, for Johnny Zaro, this 1941 Ford convertible is as perfect as the day it was completed.

Beginning with the original '41 design, the body was channeled eight ins. The insertion of a straight rear crossmember dropped the whole assembly another three ins., a total of 11 ins.! A feature of this car is the fact that stock springs are used, giving a normal ride. The top was cut 4½ ins. and a new top was built by Chavez.

The hood and fender fadeaways were hand-formed from sheet stock to fit body contours. The rear fenders and fadeaways were then molded into a permanent part of the body. The grille is a combination of Pontiac and Studebaker components plus a few unidentifiable pieces.

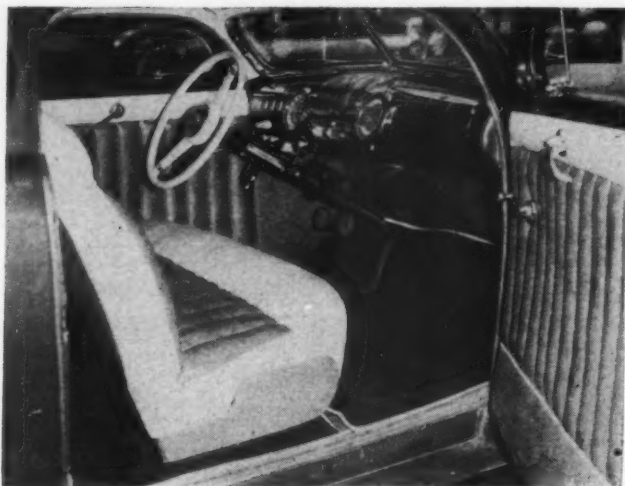
Upholstery is also by Chavez in red and white plastic. All interior fixtures and dash panels are chromium plated with hand worked red plexiglass trim. Both doors are electrically controlled, as is the rear deck. The car is finished in metallic maroon.



MOLDED rear fenders and shaved rear deck are fine examples of custom rework. Sunken license plate is protected by a glass cover

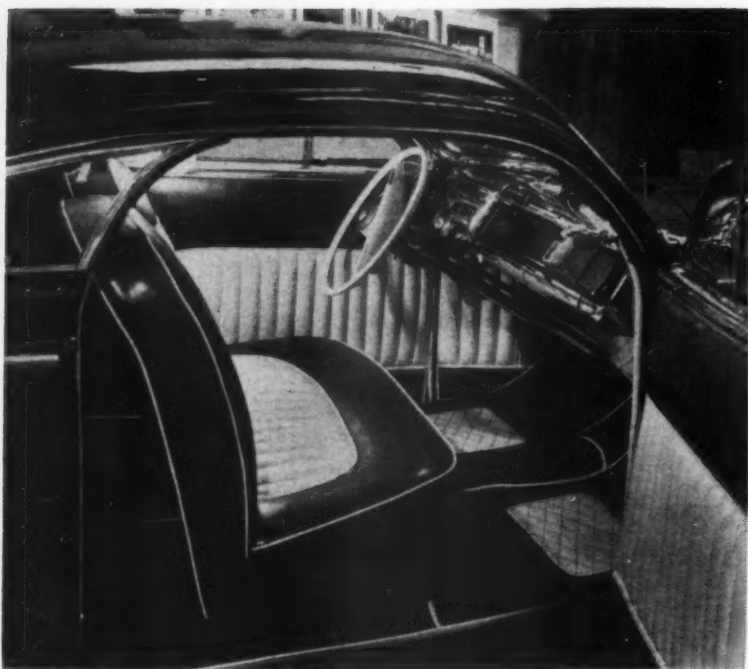
CUSTOMIZE... YOUR CAR'S INTERIOR

by Eugene Jaderquist



E. RICKMAN

STEPPING INTO this Ayala Ford is like stepping into a room full of sunshine, thanks to synthetic interior in honey-gold and brown



E. RICKMAN

UNMISTAKABLY BARRIS in design, this Mercury interior achieves glossy perfection with DuPont Fabrilite. Quilted floor pads, seats, are all foam rubber. Total cost, including deck rug: \$325



THIS '41 CADILLAC was built by... Smooth curve in leather flows... Expensive, conservative, this style will...

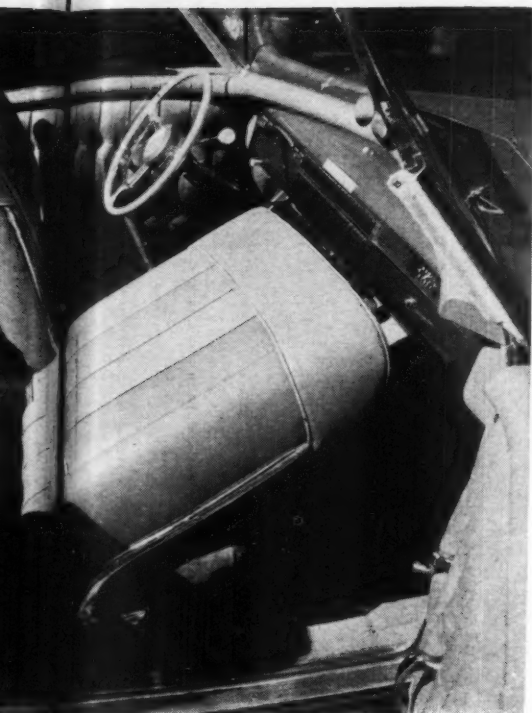
CUSTOM-CAR owners need professional guidance in the design and crafting of body panels. The exterior is for the public to see, admire, eventually imitate through pressure on the Detroit body-stylers.

But the interior, from left door panel to right door panel, firewall to rear-window ledge, is the owner's private domain. He can specify materials, colors, patterns to his own taste. In custom-car interiors the revolt against the conservative past has been carried to a successful conclusion.

Until the birth of the modern re-styled automobile, custom interiors were the exclusive property of the wealthy owners of classic cars of yesteryear. As the classic cars fell from favor, extravagant fabrics and gold-plated door handles became unfashionable. It seems a lifetime since the *New York Times* reviewed the special salon exhibition of Duesenbergs in Saratoga and devoted an entire paragraph to one sumptuous brougham fitted with Elizabeth Arden's most costly vanity sets. And who can remember the Marilyn Miller Rolls-Royce coupelet with seats covered by solid slabs of elk-hide?

Modern custom cars are owned by young enthusiasts of moderate to meager means and high mechanical-aptitude

Motor Trend



A. E. ARNOLD

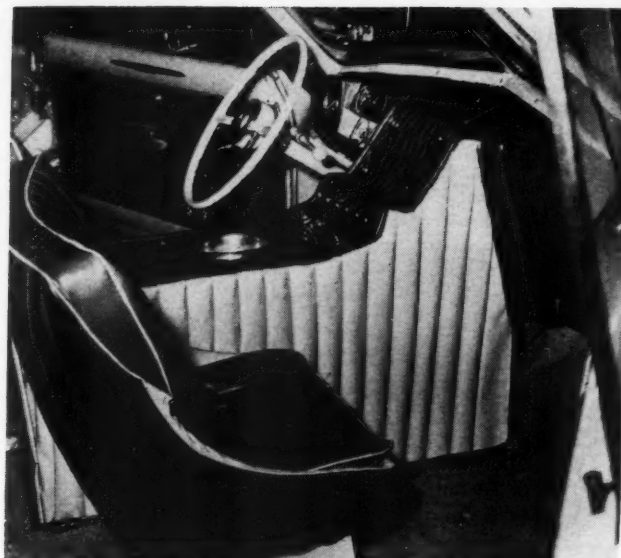
built by Herman and Schwartz, Pasadena. flows and front from door to door. his style will never go out of fashion

DRIVING IN a dream world: this experiment in synthetic zebra gives an eerie, no-ceiling effect, achieved by using solid, unbroken pattern to hide break of curve between door and ceiling

scores; built by gifted, self-trained craftsmen of the same generation. Owners and builders delight in new materials synthesized by mid-century chemists and have no inhibitions concerning violent, often garish, color combinations. General interior patterns are influenced by such varied models as modern architecture, contemporary furniture, even juke-boxes and abstract art. Occasionally the result is a formless patchwork of plastics in furious color, but more often the owner-designer creates a highly satisfying, functional interior.

As you study the ideas on these pages, why not do so with an eye to enriching, personalizing your own car's interior? If you have the ideas, upholsterers can usually carry them out.

THEME FOR a sports car interior, carried out in unborn-haircalf and russet steerhide by Runyan of Hollywood. Note aircraft seats—deft matching of horizontal with vertical calfskins

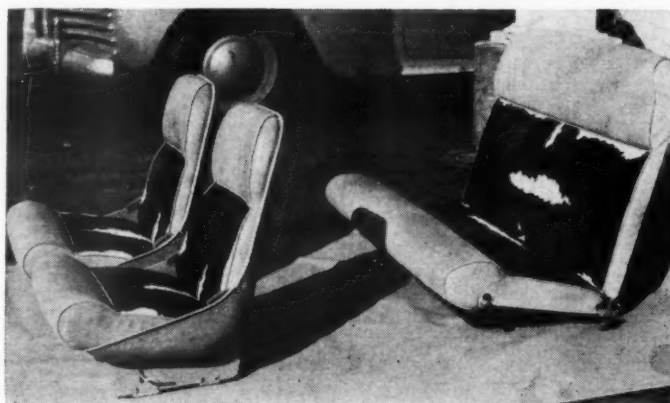


BILL HARKINS

ORIGINALITY IN plastics—Jim Miller's custom Ford. Utility armrest in center dominates interior. Note how front seats are isolated in sea of carpet



E. RICKMAN



BOB TITUS

YOUR OWN SHOP



ONE OF the most useful pieces of equipment (above, right) in any shop is a bench grinder. You can save money on this item by assembling it yourself from easily obtainable parts

PRIME REQUIREMENT in construction of a workbench (above) is solidity—all joints should fit squarely, be glued, joined by carriage bolts

by P. S. de Beaumont

AS COSTS rise, doing your own work on your car becomes more and more profitable. Armed with a good book on repair and a few basic tools, and with a good place to work, even the beginner can save as he learns—and, just as important, achieve a real sense of accomplishment and self-sufficiency.

Nevertheless, the amateur's start is too often wrong. His equipment is either makeshift and inadequate, or so costly that the original investment is greater than the anticipated savings. We're all inclined to be tool mad. The symptoms are an irresistible attraction toward hardware stores and tool jobbers, an empty wallet, and a garage full of unused but decorative tools. The cure is hard to prescribe, but is compounded of fortitude and a hard-headed attitude that every tool must pay its own way, no matter how cute it is.

The Bench

The first requirement for your garage-workshop is a solid bench, six feet long or more, and you can make it easily. Used or scrap lumber is much cheaper than new, and is likely to be better seasoned. Hardwood is best, but hard pine will do; soft wood is useless for this purpose.

Twenty-eight



...at Little Cost

Construction can't be heavy enough; two-in. planks for the top and 2x4s for the legs are the very minimum. Notched joints are nice, but equal rigidity can be gained without them by through-bolting every joint with heavy carriage bolts and washers, using a modern plastic resin waterproof glue on all mating surfaces. The diagonal sway braces may be made of fairly light material, but also should be bolted and glued. Bolt the bench to the garage wall, and, if you can, to the garage floor too.

Ordinary planks will serve for the top, each one glued and bolted to every cross-member, with the bolt heads countersunk. Plane the tops of the planks level and cover the whole bench top with tempered $\frac{1}{4}$ -inch Masonite—a nicer working surface than steel—held down with closely spaced flat-head wood screws. The Masonite edges, trimmed flush, should be rounded with a file and given several coats of shellac to seal them. A coat or two on the entire top will reduce oil soaking.

Bench height and width depend on space and taste. Mine is 33 ins. wide by 35 high. This width leaves room for tool chests at the back, and the bench's height is tailored to my own.

Bench Equipment

A good heavy vise, with jaws at least three inches wide and, if possible, with swivel base, should be securely bolted to the bench as close as possible to a leg and crossmember. Get a good one. "Bargain" vises are likely to be worn out or made of brittle cast iron.

A bench grinder is exceedingly useful,

not only for grinding, but for removing rust and paint with wire brushes and for many polishing jobs. The six-inch size is as small as will prove satisfactory, and costs from \$30 to \$75, according to power and quality, but a better substitute can be assembled for much less.

Manufactured bench grinders have safety guards over the wheels, as well as tool rests, but these are, more often than not, in the way. I've found it far better to use a six-inch polishing head (\$6 new) belted to a used $\frac{1}{2}$ -hp motor, with both units bolted to the bench. The wheels are clear of obstructions, a chuck of many uses comes with the polishing head, and the total cost is under \$15. If you want them, removable rear guards and tool rests can be improvised at trifling cost.

Portable Equipment

Easily the most useful power tool is a good $\frac{1}{4}$ -in. electric drill. New ones of only fair quality cost at least \$25, so it's worth while to look for a good used one of industrial (heavy-duty) quality, with Jacobs key chuck and ball bearings throughout.

Standard drills have no-load speeds of about 1600 rpm. Aircraft models, for drilling aluminum, have speeds around 3500 rpm, fine for that material and for grinding, polishing, wire brushing, and using burrs. But 3500 rpm is much too fast for drilling steel, results only in dulling the twist drills. The only way to use a 3500-rpm drill on steel is to keep working the trigger to try to average the right speed—an unsatisfactory procedure which still dulls the drill point.

Motor Trend

There are many attachments which make electric drills extremely versatile. Any large hardware store has a wide selection for all sorts of cutting, polishing, and grinding. In desperation, you can clamp a drill in the vise to serve as a light grinder-polisher, and I've even used one as a crude lathe, chucking small parts in it and using files and various polishing materials.

The market has recently been flooded with attachments for increasing $\frac{1}{2}$ -in. drill capacity to $\frac{3}{4}$ -in. These are poor compromises; it's better—and so much cheaper!—to borrow a $\frac{1}{2}$ -in. drill when you need one, if you ever do.

For working under the car, you can make a creeper of plywood or Masonite, with a padded head rest screwed to it, and if you like you can add a light hardwood frame and four old casters. For supporting the car off its wheels, logs at least 12 inches in diameter can be cut square to proper length as cheaper substitutes for steady jacks. Heavy wood blocks will do equally well.

A circuit tester is essential, the simplest kind consisting merely of an auto bulb and socket, some wire, and the car battery disconnected from the circuit and used as the current source. A better outfit, made up by assembling a door buzzer

and flashlight cells in a small wood box, will cost less than a dollar.

Hand Tools

Most beginners start off in one of two wrong directions when it comes to economy with common wrenches, screwdrivers, and so on. The well-heeled simply lay out a couple of hundred dollars for a small selection of quality tools; the others buy up the nearest cut-rate equipment. Both pay too much, but the boys with the chips at least have excellent tools, while the penny-pinchers have bought junk that probably will have to be replaced almost immediately.

The best compromise, if you want brand-new tools, is to buy from a big mail-order house like Sears' or Ward's. Their best-grade quality is fine; in fact, they are usually made by a top quality manufacturer, and you get the benefit of the mail-order firm's more efficient merchandising. Not every mail-order tool is all it might be, however, so shop around when it comes to anything complex that depends for efficiency on good mechanical design.

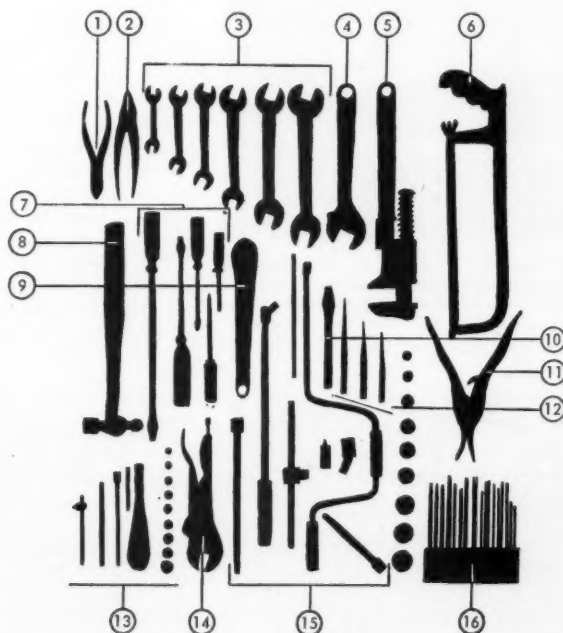
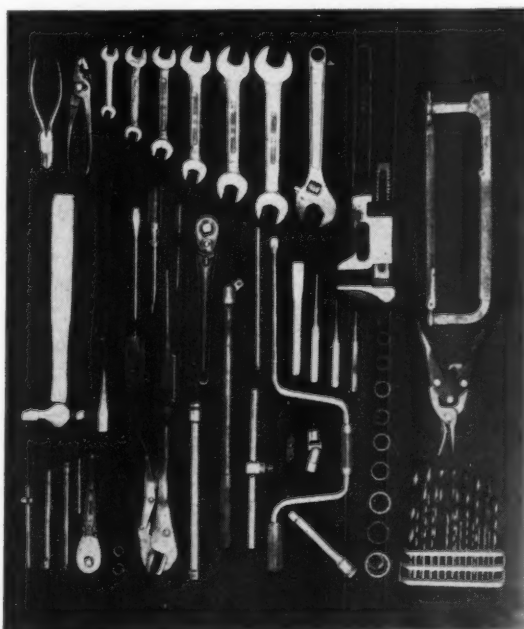
Better bargains are to be found second-hand, if you have time to look and a good idea of values. Very good tools often go for pennies at farm auctions, for example.

But unless you're an expert, buy used tools only after careful examination and on the basis of reputable trade names. As to prices, use the mail-order catalogue as a guide. Above all, beware of hock shops—their prices are often above list.

The particular variety of basic tools to start with depends on the kind and amount of work to be done. Those in the illustration are just about the rock-bottom minimum, with such additions as files, soft hammer, other pliers, soldering iron, just around the corner. It's best to begin deliberately with too few and to add strictly according to need. Actually it's often cheaper to have the work done than to buy tools just for one job, as anyone but a tool maniac knows.

Incipient tool mania can sometimes be warded off by cautious borrowing of rarely needed items like $\frac{1}{2}$ -in. drills and out-size wrenches. All it takes is tact and the careful development of a reputation for the prompt return of tools in good condition.

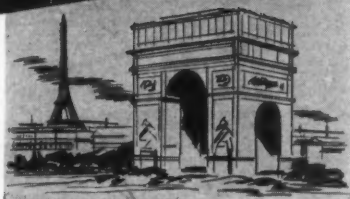
If your case of tool madness is incurable, try at least to forego such tools as may be beyond your present skills—like fender bumping kits, welding outfits, spray guns, machine tools. They may be the most fascinating, but they're also the most expensive and the hardest to learn to use.



DON'T BE half-equipped! This assortment of tools represents the approximate minimum with which to set up a really useful shop. One essential tool not shown is the versatile $\frac{1}{4}$ -in. electric drill

- | | |
|-----------------------------|--|
| 1. Side cutters | 9. Ratchet socket handle |
| 2. Pliers | 10. Cold chisel |
| 3. Open end wrench set | 11. Tin snips |
| 4. Ten-inch crescent wrench | 12. Punches, drift pins |
| 5. Heavy-duty monkey wrench | 13. $\frac{1}{4}$ -in. drive socket set |
| 6. Hack saw | 14. Vise grips |
| 7. Assorted screwdrivers | 15. Complete $\frac{1}{2}$ -in. drive socket set |
| 8. Ball-peen hammer | 16. Good assortment of twist drills |

tendance continentale



TURIN

CUSTOM CAR CAPITAL

by Count John Lurani



NEW ALLARD for '51 is the M.2 Drophead Coupe. Top is hydraulically operated, hood and fenders form a unit, swing up for engine access



BRUSSELS, Geneva, Turin, Frankfurt—the multiplicity of auto exhibitions sometimes dulls the edge of novelty and interest for the European who sees them all. But, somehow, the Turin show has a character of its own that makes it always fascinating and heartily received.

Perhaps it's the almost endless variety of handsome coachwork that gives the Turin show its special appeal. This year, at Italy's 33rd International Automobile Show, no fewer than 23 body-builders had stands, and much work of excellence and charm was displayed. Italy's masters had let their taste and fancy have a free hand, worked, primarily, on the Fiat 1400 chassis, and, employing light alloys, careful streamlining, and an eye for simple elegance, produced bodies that combined efficiency with grace.

The current trend of European design was very evident. Fiat and the little firm Moretti still build what are by Italian standards light cars—less than 1000 cc—

but emphasis is on the so-called "European" type: a car of medium cyl. capacity, made to carry 4-6 passengers, stressing good economy and performance.

Examples of the type were Lancia's "Aurelia," a six-cylinder V-engine model that can be purchased with 1600 cc or 1900 cc (98 or 116 cu. in.) capacity at choice, capable of 85 and 100 mph; Alfa Romeo's four-cylinder, twin overhead cam 1900 cc model; and Fiat's world-famous 1400, a four-cyl. car of truly excellent performance.

The sporting versions of these cars were displayed too. Lancia's new "Aurelia Sport" model was one of the brightest stars of the show. It's a twin carburetor, short chassis, 2-3 seater coupe, has an 80 horsepower 1991 cc motor, and in standard form reaches 100 mph—fine performance at a good price. Alfa's attractive sport 1900 model has short chassis and twin carbs too, is equipped with Rudge wheels, and will do 110 mph.

TOURING, FAMOUS coachbuilding firm, produced this Ferrari "Superleggera" coupe (left)

VIGNALE CREATED this superb aerodynamic body on a fast Ferrari 166 base (below)





BRAND NEW addition (left) to Maserati line has convertible body by Frua, is good for 110 mph

LANCIA AURELIA (below), star of Turin Show, has 116 cu. in. V-6 engine, top speed of 100 mph



High performance machinery—with price no obstacle!—was well represented. Ferrari's stand was impressive with its 12-cyl. models, the slowest one with a guaranteed speed of 110 mph, and the 4100 cc monster—small as the other cars in appearance, but enormously powerful—with a guaranteed road speed in touring trim of over 130 mph! Maserati displayed both its six-cyl. 2000 cc sports car and the prototype of its 450 bhp eight-cyl. twin-blower 3000 cc racer. A pity to have this last quite idle in Turin when it might have run at Indianapolis!

Fiat, whose annual production of 100,000 vehicles represents almost 90 percent of Italian production, had a superbly executed exhibit that included an ingeniously contrived model of the 1400 cc limousine in which everything was automatically operated by electrical devices and relays. Doors opened, the steering wheel turned, the gears shifted, horns tooted, brakes were applied, all while a

disembodied voice explained the activity as though the car itself were speaking.

There was little that was new among the foreign (to Italy) contingent. England exhibited many prototypes of Italian bodies on standard chassis—a Farina Rolls-Royce, a Vignale Riley, a Ghia Armstrong-Siddeley. The French Renault "Fregate," a new 1900 cc four-cyl. model shown in Italy for the first time, created great interest. American cars have always been interesting here, but some of their popularity seems to fade away when the harder-headed Italians multiply their high gasoline consumption by the enormous cost of fuel in Italy, and add the heavy taxation and the fact that the huge size of the American car is not very appropriate to our roads.

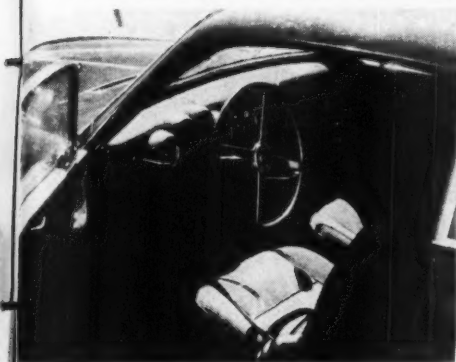
So the Italian line was best represented and received. Altogether one can say that it is quite clean, simple, and rather conservative. Colors are calm and nicely selected. There is quite a trend toward two-

colored bodies, the roof different than the panels. Two points of the show that were of particular interest to Americans are, first, that custom-built cars are an important and accepted part of the automobile industry here; second, that custom bodies are supplied on the cheapest and dearest chassis—"personalized" cars are available on every buyer level.

GRAND PRIX PROSPECTS: Alfa Romeo this season will at last feel the pressure of real competition, both from the 4½ litre Ferraris and the latest design of the Maserati brothers, the new Oscas—but is well-equipped to meet it. The '51 Alfa is called the Type 160, yields an official 340-350 bhp—and a rumored 405!!—has de Dion rear end, huge rear wheels, and, as predicted at the end of last year's season, carries extra fuel tanks for non-stop long-distance driving. The Talbot factory in France has closed for the usual financial reasons, and although private owners will undoubtedly continue to race

SUPER STYLING on a "poor man's car." RIVA did this body on a Fiat 1400 chassis (right)

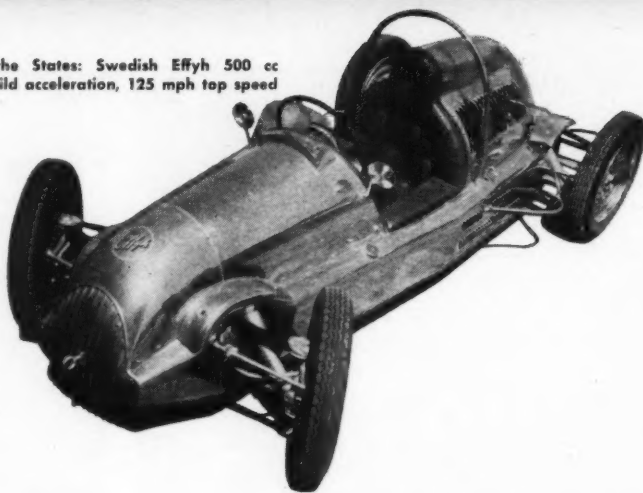
FRUA BUILT this ultra-lightweight body (below) on Maserati brothers' four-cyl., 1350 cc Osea



Talbots, the fast but unproven 1500 cc blown Simca-Gordinis will be the only works racers to fight for France in the G.P. arena this year. . . . Alfa has announced its intentions of extending its duel with Ferrari to Formula II competition this season. And, according to a persistent rumor, Ferrari will have a new twin overhead cam version of the car that swept the Formula II field last year. Simca, AFM, and Veritas will compete too, and England may have a new contender for Formula II glory in the incredibly light AJB engine, now reaching completion. The flat-four (two pairs of cylinders, horizontally opposed) engine develops an estimated 180 bhp at 7000 rpm, and has a total dry weight of 180 lbs.—one hp for each lb. of engine weight! . . . The new Formula I for international racing, which will, pending almost certain F.I.A. ratification, become effective in 1954, will be 750 cc blown (45 cu. ins.), 2½ litres unblown (152.5 cu. ins.), following the unchanging trend to smaller displacements. A proposed Formula N (for New?) would regulate gas turbines, diesels, all miscellany. Formulas II and III are yet to be determined.

GERMANY: There's exciting Mercedes news for the U.S.: Hermann Lang will almost certainly have a car—probably one of the 3-litre Mercedes that raced in Argentina this year—at the Pikes Peak run on Labor Day. Mercedes is ready and equipped to fling itself into production of record-attempt machines, would complete construction of three cars to run on Utah's salt flats—if the dollars were available for sending men and machines to the U.S. . . . The Frankfurt show, in progress as we go to press, features a new German car, the Trippel, a streamlined, very short wheelbase two-seater sparked by a 498 cc flat-twin air-cooled modified Zundapp motorcycle engine that's mounted at its rear. Body and chassis are a single unit, welded of thin-gauge sheet steel. The engine develops 18 bhp at 4000 rpm, has a top speed of 70 mph; the car is independently sprung all around on rubber blocks in torsion, and, at about

NOW IN the States: Swedish Effyh 500 cc racer has wild acceleration, 125 mph top speed



\$760, is a rather good buy.

SWEDEN: Recently made available to U.S. buyers through a New York distributor is the EFFYH 500 cc (30.5 cu. in.) racing car. Designed by aeronautical engineers, it has remarkable light-weight construction, is powered by the 43 bhp, 14:1 compression ratio J.A.P. engine. The chassis is of chrome-moly aircraft tubing with all main members lightening-holed and flanged; wheels are chrome-plated aluminum discs. And these are its hair-raising acceleration figures: 0 to 60 in five seconds; 0 to 80 in nine seconds; 0 to 100 in 15! Top speed is over 125 mph.

ENGLAND: Lt. Goldie-Gardner will make more attempts at record-smashing at Bonneville, this time in the 61-96 cu. in. class; AAA sanction has been issued to him for the week of September 3. . . . Jaguar has proved again that it's a car of excellent performance. Leslie Johnson, in a stock XK120, averaged for one hour 131.83 mph from a flying start, 131.20 from a standing start around the banked Montlhery track. . . . The record-breaking A40 Austin (63 records to date) will be off on another adventure on June 1st, this time an attempt to go around the world in thirty days, driving overland wherever possible and flying over the oceans. The car will carry a two-

man team and 1500 lbs. of equipment and spares, will face all kinds of weather and road conditions. The Austin will have an open body on the A40 chassis, and have twin carburetors, all-hydraulic brakes. . . . Newest English light car is the Russon, a runabout equipped with a single-cylinder, two-stroke, 196 cc J.A.P. engine. . . . Now available from an English publisher is the Hillman Minx Handbook, with instructions for coping with all the Minx models from 1932 to now.

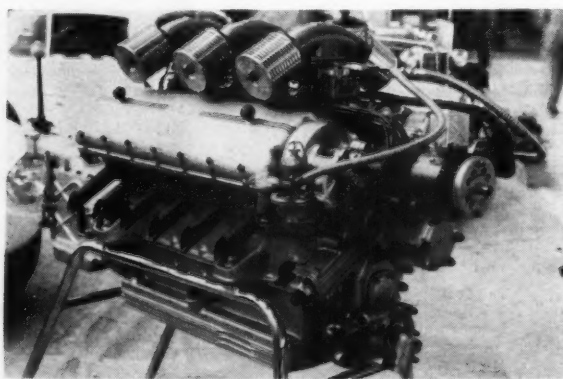
SWITZERLAND: The only completely new car at Geneva's show was also the cheapest. It was the fabric-covered, 3-4 seater sedan Lloyd LP 300, a product of Hansa-Lloyd of Germany, using a two-stroke twin, air-cooled 293 cc (18 cu. in.) engine set transversely across the frame. Stripped of frippery, embodying only those features essential for transportation, the Lloyd represents a type of car well-suited to the slim continental purse.

LATE FLASH: Jaguar does it again! One of the most spectacular victories in team racing history took place at the recent Silverstone One Hour Production Car Race in which XK-120s sailed home in first, second, third, fourth, and fifth places in the Unlimited Class, naturally captured the team prize to boot . . . a remarkably sweeping win.



POWER PLANT of the two litre (122 cu. in.) Maserati sports model, a justly famous engine. Note three carbs, six ports, neat water header

Thirty-two



MADE FOR U.S.A.—The brand new 4.1 litre (250 cu. in.) V-12 Ferrari develops over 240 bhp—is today's outstanding sports car engine

Motor Trend

Sports Trial

(Continued from page twenty-four)

toward the second and high "groove." On the Sunbeam-Talbot one lifts the lever towards the steering wheel to go from the low-second groove to the third-high groove. Even after several hundred miles of test driving, this did not seem to be a natural movement. It should be mentioned, however, that this arrangement is almost universal on British cars having column gearshift, and obviously one becomes accustomed to it in time.

So far as the transmission itself is concerned it seemed entirely adequate. The four forward ratios are well chosen and the engine's good low speed torque characteristics provide excellent acceleration when full use of the gears is made.

The manually operated Synchro box is of the Rootes balk ring type which makes very rapid shifts possible without clashing the gears. Accidental engagement of reverse is prevented by a lock which is released by pulling shift lever knob out.

The Sunbeam's brakes deserve special mention. The pedal pressure required is moderate and the car can be brought down to a crawl from cruising speeds without any sideway. Under emergency conditions, all four wheels can be locked at once. On a wide boulevard in the rain I



LAYOUT OF controls, radio, heater is neat, in keeping with car's trim overall design. Instruments are calibrated in U.S. and metric values

tried a "hands off" stop, locking all four wheels at 45 mph. The car continued in a straight line until the last 15 feet finally halting, the back about two feet off line.

Following conventional British practice, the Sunbeam-Talbot is powered with a four cylinder overhead valve engine. The bore and stroke are 3.19 x 4.33 ins. (81 x 110 mm) giving 138.2 cu. ins. (2,267 cc) piston displacement. This power plant running at 6½ to 1 compression delivers 70 bhp at the flywheel at 4000 rpm. On the car tested, the cylinder head had been milled in order to raise the compression to a figure suitable to American fuels. It is understood that this modification is standard on all export models. The performance of this unit can be definitely termed "sporting."

One of the things I liked most about

(Continued on page forty-six)








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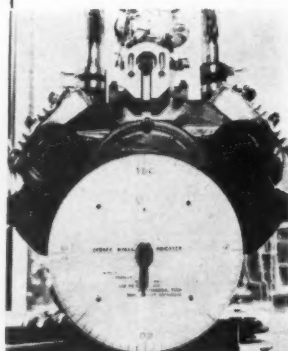
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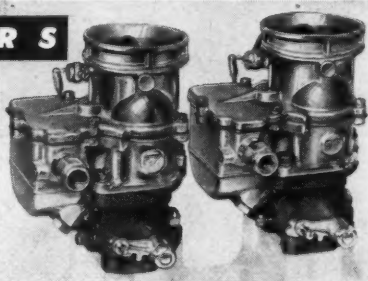
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WHAT'S YOUR IDEA?

DRAWN FROM READERS' SUGGESTIONS
BY AL CRUNDALL, NOTED DESIGNER



CUSTOM DESIGN for '48 Plymouth Coupe includes '50 Plymouth grille and rear fender sections, '48 Dodge front fenders and trim. Submitted by Ralph Horn, Champaign, Illinois



OF INTEREST to all '51 Ford owners is this simple and practical suggestion by J. L. McCloud, Stanford, California. By moving the grille guards to the center, removing the nose chrome, and installing twin fog lights in the two spinner openings, a definite custom look is achieved

AN EXCEPTIONALLY clean grille rework combining '50 Olds and '49 Buick components is but one of the many interesting modifications to this sectioned and shortened '51 Olds 88 redesigned by R. Yagami, Pasadena, California



Lincoln Motor Trials

(Continued from page twenty-one)

almost three decades of experience with production of the V-8 engine. The Leland Lincoln became Ford's first V-8, and Ford has been the world's biggest producer of this type of engine, has had years of experience in acquiring, and developing know-how—a pleasant position to be in as the automotive world awakens to the superiority of the V layout.

As far as I know, not even its manufacturer calls attention to the fact that Lincoln's engine is the biggest being fitted to a passenger car today, anywhere in the world—the reason being, I suppose, an understandable desire to avoid creating the impression of a gas-eating gargantua in the economy-conscious public mind. However, economy-wise, a big engine lightly stressed is equal to or better than a small engine pushed to its limit.

The Lincoln engine reeks reliability; it's a simple, un-gadgetsy design that has been refined to the ultimate degree over the years. Outstanding features are its forged crankshaft (not cast, as in the Mercury), excellent crankcase ventilating system, fore and aft vibration dampers (the flexible flywheel doubles in this capacity), and hydraulic valve lifters. There's nothing more annoying than tappets that don't tap, and we've encountered them in more than one hydraulic-tappet engine. We were pleased to find that, in spite of deliberate high over-revving, the Lincoln's tappets did their job properly and in silence. They operate at zero clearance, regardless of valve condition or engine temperature, and require no adjustment. Like the rest of the car, they're made to serve silently and faithfully.

TREND TRIALS NO.: The Lincoln "Sedan Sports" falls in the \$2501-2700 price bracket and its Trend Trials No.—index of operating expense and depreciation—works out to 40.48, a reasonable figure for a quality vehicle. Large, quality cars do have a higher depreciation rate since there is not the consuming demand for them on the used car market that exists for economy machines. The T T No. is also boosted by the proportionately high cost of replacement parts.

TABLE OF PERFORMANCE DYNAMOMETER TEST

1200 rpm (full load) 30 mph	45 road hp
2000 rpm (full load) 49 mph	71 road hp
3100 rpm (full load) 75 mph	(max.) 95 road hp

ACCELERATION TRIALS (SECONDS)*

Standing start 1/4-mile	:19.90
0-30 mph (no gear change)	:05.49
0-60 mph through gears	:15.58
10-60 mph in high gear	:23.42
30-60 mph in high gear	:12.83

TOP SPEED (MPH)*

Fastest one-way run	100.67
Average of four runs	97.08

FUEL CONSUMPTION (MPG)

	Conventional	Overdrive
At a steady 30 mph	22.13	26.53
At a steady 45 mph	20.00	24.98
At a steady 60 mph	15.61	17.05
Through light traffic	18.33	
Through medium traffic	15.03	
Through heavy traffic	11.33	

*Without use of overdrive. High gearing permits identical top speed in conventional or OD.

(Continued on page forty-nine)

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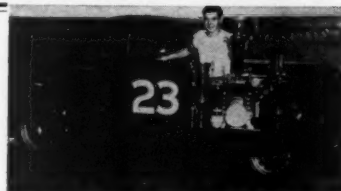
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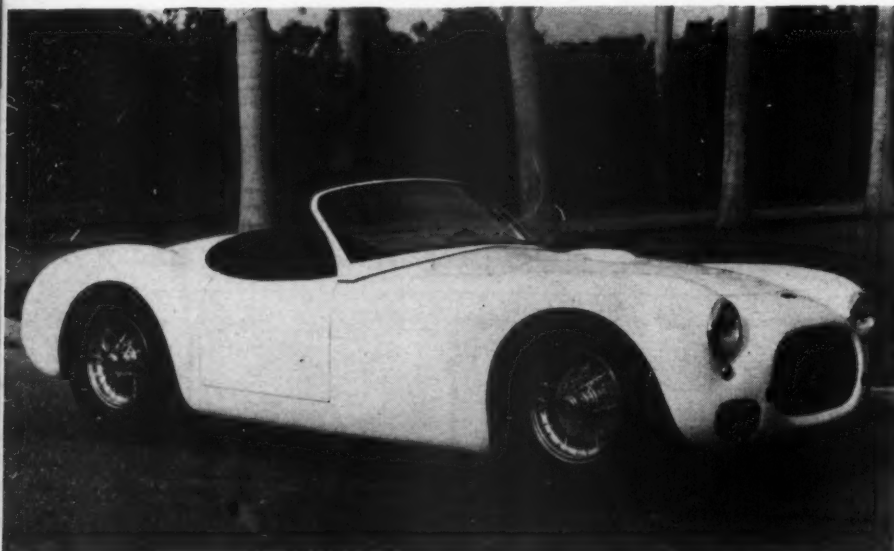
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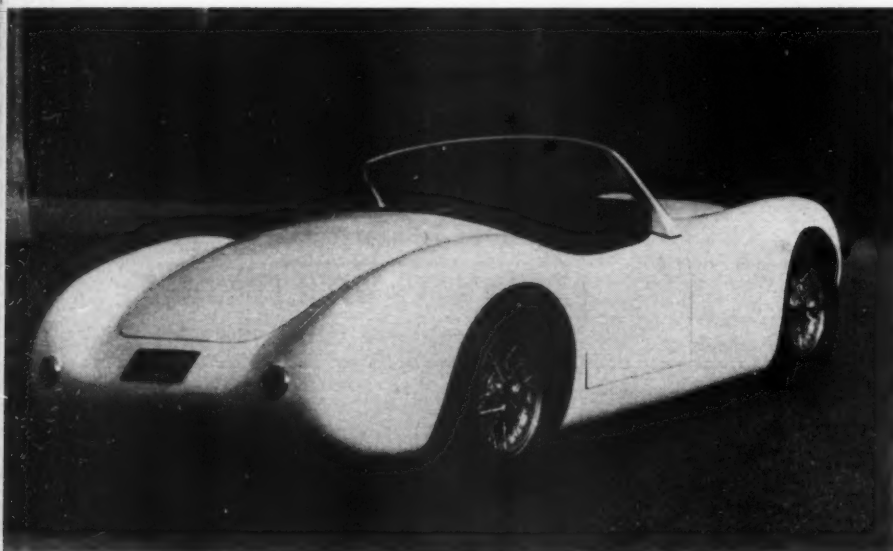
CALENDAR OF EVENTS	
JUNE 8-9	Bridgehampton Road Race
16-23	SCCA Studebaker Proving Grounds Meet
17	So. Cal. SCCA El Segundo Time Trials
JULY 4	SCCA Mt. Equinox Hill Climb
14-15	Mich. SCCA Press on Regardless
AUG. 12	So. Cal. SCCA Gymkhana (Tentative) SCCA Studebaker Proving Grounds
SEPT. 15	Watkins Glen Grand Prix
OCT. 14	Fall Running of Sandberg Hill Climb, So. Cal. SCCA

THE SPORTING SCENE

- **FIRST O.H.V. 60 ?**
- **CUNNINGHAM CHALLENGER**



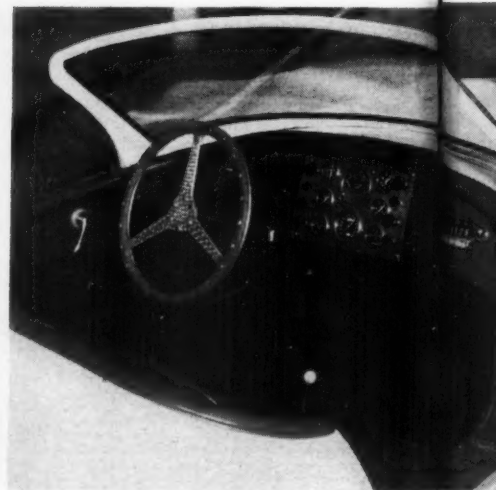
SLIGHTLY REMINISCENT of Ferrari and Frazer-Nash in appearance, Cunningham design combines strength and rigidity. Body and chassis are one lightweight welded tubular steel unit



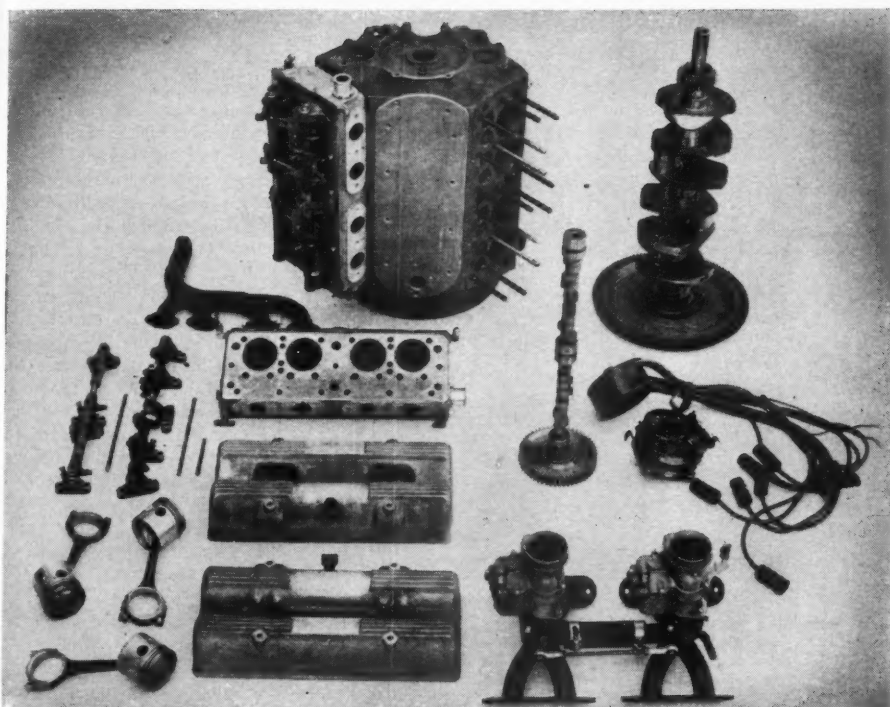
THIS VIEW is one Briggs Cunningham hopes to show competitors during the LeMans 24-hour race. The short (105-in.) wheelbase should give good handling qualities on this tricky course

THE BRIGGS CUNNINGHAM SPORTS CAR is out of the rumor and guess stage and into production. Designed to meet the standards of even super-enthusiasts, the Cunningham is certainly a threat to the best of Europe's current crop. Although the first models are tagged for the LeMans 24 Hour Race, subsequent production cars will be available in the early fall.

A choice of two power plants is offered, the 160 hp Cadillac or the newly introduced 180 hp Chrysler V-8. These engines may be stock or the Cunningham organization will provide a modified version at additional cost. The JeDion type rear end is driven through a three speed Syncromesh gearbox and a single plate dry disc clutch. A two-speed quick change straddle section or an overdrive are also optional equipment. Front suspension is by independent coil spring and wishbone. Dual hydraulic shock absorbers are provided for each wheel. Center locking 16-in. wire wheels are standard with tire size or disc wheels left to the purchaser's choice. The steering gear is worm and roller with a 17-in. racing type steering wheel. Specially designed "non-fade" brakes provide a friction area of 241 square inches. Tie all this together with a



INSTRUMENT PANEL displays a well-planned layout: tachometer, speedometer, oil and water temperature, oil and fuel pressure, ammeter, and fuel gauge. Radios are standard equipment



curb weight of approximately 2800 pounds and you have a potent vehicle.

Although actual performance figures are not available at this moment, they should be spectacular. Mr. Cunningham and his staff are to be congratulated for their initiative and perseverance in the development of this All-American sports car.



THE EDWARDS SPORTS CAR (MOTOR TREND, January, 1950), a consistent winner and outstanding example of sports

car construction, appeared at the Palm Springs Road Race with an entirely new engine. As this engine presents a new twist in modified production equipment, sport-minded readers will be interested in some of the hows and whats.

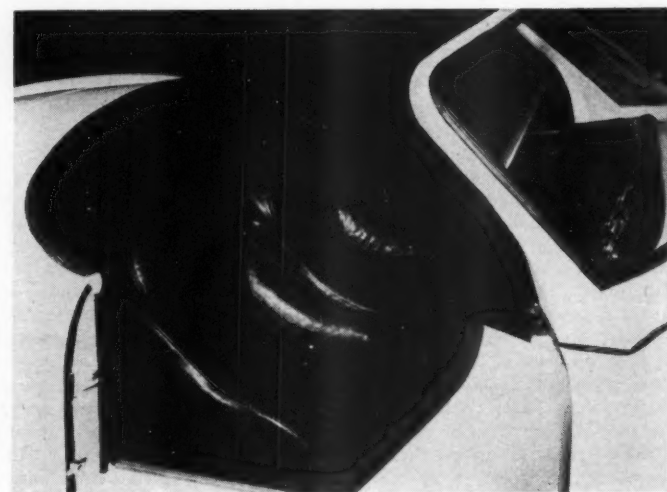
Basically, a 1940 Ford V-8 "60" block assembly, a piston displacement of 152.28 cu. in. has been obtained by using a 2.70-in. bore and a 3.325-in. stroke. Standard Ford connecting rods and crankshaft are used with some modification. Pistons are of an Eddie Meyer design, three-ring,

T-slot with a 1/2-in. dome iycut for valve clearance similar to Meyer-Drake types.

The cylinder heads are the most interesting detail of the engine. They are believed to be of Ardun design but are not similar to the larger Arjun type. The heads feature a hemispherical combustion chamber with pushrod-operated inclined valves. Two sets of rocker arms are used on each head, the inner or intake valve mechanism being actuated by cam driven hollow steel pushrods. The outer set or exhaust valve rocker arms are in turn actuated by short lateral pushrods from the intake valve. All this sounds quite complicated but a conservative estimate of horsepower indicates 130 hp at 5500 rpm! Both the 1 7/16-in. intake and the 1 1/4-in. exhaust valves seat directly into the alloy head. All valve ports are squared near the valve to increase area and decrease pushrod resistance. In order to give greater head to block surface, the relieved area between cylinders and valve has been filled and the block milled .040-in. Incidentally, no head gasket is used, head and block are lapped notwithstanding a 12:1 compression ratio.

The camshaft is a special Winfield grind. Ignition is Meyer designed and built. Two Model 81 Stromberg carburetors supply 91 octane fuel through a special tubular manifold built by Phil Remington, the mechanic maintaining the Edwards car.

The Edwards car made an excellent showing in the Palm Springs event. It is a fine example of what careful design planning and workmanship can accomplish without imported components. Does anyone know of any other ohv Ford 60s?



SMOOTH STYLING of body is further complemented by foam rubber crash protection and top grain leather upholstery. Cars will be available to the general public sometime in early fall

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AUTOBOOKS

BOX 469-T
NO. HOLLYWOOD, CALIF.

Spotlight on Detroit

(Continued from page ten)

British-built, small car of completely modern design. It is the Consul, which is to be sold through 100 selected Ford and Lincoln-Mercury dealers for a starter. The four-cyl. engine has a displacement of 92 cu. ins. It develops 47 bhp at 4400 rpm, and has a compression ratio of 6.8:1. Top speed is 70 mph, and it is reported to deliver up to 37 mpg. . . . Ford's Consul has a wheelbase of 100 ins., with approximate overall length of 162 ins., overall width of 64 ins., and overall height of 61



FORD CONSUL, recently introduced to the English market, will also be tried out on the American public. Smart styling is bolstered by an ohv four-cyl. engine, is publicized as a great step ahead in the economical family-car field

ins. It is manufactured in one model only, a five-passenger, four-door sedan which is available in a full range of colors. There is some speculation in Detroit that this car is, in reality, the proposed small American car that Ford has had under consideration for several years. The thought is that this is a test to determine how the public here will react to such a car. This is not as far-fetched an idea as it might seem, since to produce an experimental car in a foreign factory costs much less than to do it in the United States. Contributing to the lower figure overseas are reduced tooling expenses, smaller production runs and much lower labor cost. . . . The light car Chevrolet toyed with right after the war is now being manufactured in Australia. All of the tools, dies and other equipment developed here by GM were shipped to the land down under when the corporation decided the American market was not ready for a small car. . . . Plymouth is releasing a new "hardtop" to dealers throughout the country. Called the Belvedere, it will be available in all standard and four special two-tone exterior color combinations. The company terms it a club coupe with the windows closed, and a semi-enclosed sports car when all windows are opened. . . . One of the outstanding features of the Belvedere and other Plymouth models this year is the "Safety-Flow Ride," achieved through the use of Chrysler Corporation's new "Oriflow" shock absorbers. Company engineers say riding and safety characteristics are revolutionized in cars equipped with them. Tests in Florida show that on an unusually rough road the safe limit of driving speed is 50 mph with conven-

tional type hydraulic shocks. The new device enables cars to zoom down the same highway at speeds up to 80 mph. Basic construction of Plymouth's new shock absorber is similar to that of the more conventional hydraulic unit in that it is composed of a piston rod and piston, a cylinder and base valve, and a reservoir. The big difference lies in the method of controlling fluid flow through the piston and the base valve, thereby providing more gradual change of resistance during spring deflection, and thus a safer ride. Another feature is the use of ten fewer parts in the new shock. This has simplified manufacturing problems and at the same time increased durability of the devices, company engineers say.

SPECULATION ABOUT 1952: Spring and Summer in Detroit is the time when all good automotive observers lightly turn their thoughts to next year's models. The result is a daily stream of rumors and predictions that surprisingly enough prove reasonably accurate. Here are some of the more recent and plausible reports. . . . One of the most startling developments rumored is the existence of a V-6 engine at General Motors. This power unit is said to have been under development since 1947 for Chevrolet, and extensive operating tests have been run at the GM Proving Ground. Actually, Ford also has been experimenting with a V-6 for some years; the idea is not new in the industry. . . . An outstanding "educated" guesser in Detroit auto circles asserts that neither Ford, Chevrolet or Plymouth will introduce new engines for at least three more years. By 1954 you should expect some really advanced engines in these three cars. . . . Studebaker is reported to have body styles ready to unveil that will be as revolutionary in 1952 as was their first post-war car. Those who have seen them can't praise them enough. . . . Hudson, which brought high-compression performance to the six-cylinder engine field this year, is readying an excitingly re-designed body for next year. Step-down features will be retained, visibility will be increased. . . . Another inside tip is that Ford plans entirely new body designs. Highlights include air scoops under the headlights, new grille treatment, curved windshield, revamped tail light assembly, restyled interiors. . . . Willys is still working on the development of a new passenger car, a dream held by the Toledo firm since the end of the war. Currently it is being stalled by material shortages, several months will elapse before the firm is able to bring it out. Best guesses are that it will be a medium-sized four door sedan, fitting in between the standard size cars and the Nash Rambler & Henry J. . . . When conditions permit once again you may even look for a revamped Lincoln Continental. However, material and other problems are such as to make it impractical to produce a luxury sports car now.

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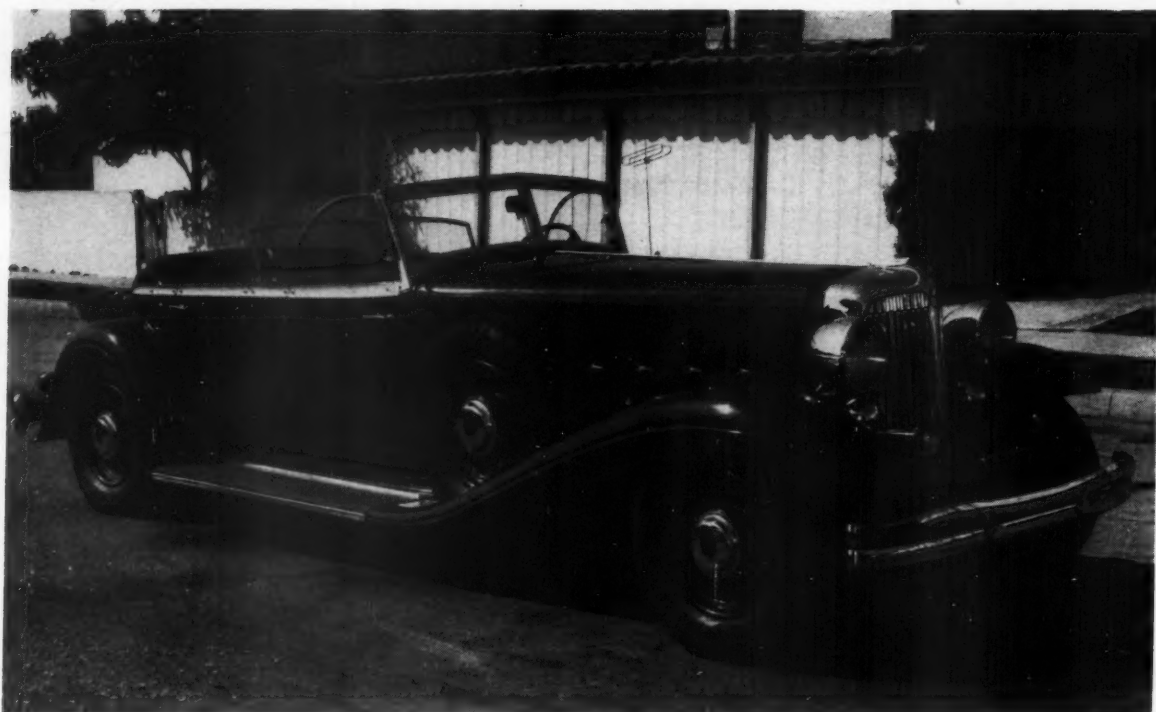
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F. ZELENKA

CLASSIC COMMENTS

CHRYSLER CUSTOM Imperial Phaeton by LeBaron, completed in 1933, sold for only \$3395

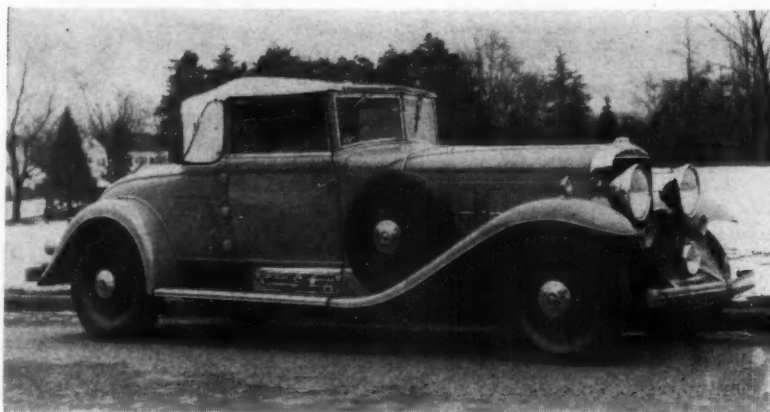
THE IMPERIAL CHRYSLER

1930 CAD V-16 "Madame X" series convertible coupe, one of the first 16s, cost \$5900 at factory

by E. A. Jaderquist

THE CAR of the month is an unusual combination of Chrysler's three best classic years. Chassis was built in 1931, body is of 1932 design, completed job was delivered in 1933 to a Memphis, Tenn. Chrysler distributor. In the catalogues, it is listed as Custom Imperial phaeton, body by LeBaron. Total price, F.O.B. Detroit—strap yourself down before reading—\$3,395. Chassis alone could be purchased from the factory for \$2,145. Other LeBaron bodies available for about the same price included a convertible coupe, convertible sedan in 1932 and 1933; convertible coupe, roadster, hard-top coupe in 1931. Other Custom Imperial bodies in this period were built by Chrysler.

No reliable figures are available for 1931, but the total sale of Custom Imperials for 1932 was 226 and the following year only 154 found customers. There seems to be no good reason for this disappointing public response. The price was right, engine was fully as responsive as any other eight produced in America, excepting only the Duesenberg. No better-designed body was produced on any



compromise chassis in those years. (Compromise chassis refers to those cars which were partly mass-produced, like Packard, Cadillac, etc.). In fact, the phaeton, as illustrated on this page, was and still is one of the few great designs in automobile history.

Robert J. Gottlieb purchased the car of the month for one-fifth the asking price. A Hollywood used-car dealer had set his own fantastic valuation of \$1,000 on the car, despite the fact that it could hardly stagger around the block under its

own power. The left side tire mount had been sawed through; the steering assembly was defective; both front springs were broken; undersize tires had been mounted on the wheels. A complete list of the faults would have staggered the most optimistic purchaser. Yet a month of negotiation was required before the dealer would meet a sane price. This is an excellent example of the patience necessary to keep classic-car prices from climbing through the ceiling. If these same tactics were used against all owners and dealers

asking obviously outrageous prices, the small-budget enthusiast would be able to own a classic.

Bob has done his best to restore the Chrysler to its original condition. The most painstaking job was removing and replacing parts to be chromed. Bob estimates that he sent 450 pieces to the platers. Each piece was done three times, because the work was unsatisfactory, and the radiator shell went through six dips before he would accept it.

Two unusual troubles plagued all the mechanics who worked on the car. Nothing anyone could do seemed to stop the engine heat from baking the ankles of driver and front-seat passenger. Second, at speeds around 65 and above, the engine temperature shot up close to the danger point.

Bob accidentally stumbled on the answer to the first problem. He had the bonnet raised one day and noticed that the ventilators to the passenger compartment were insulated. A part of this insulation was dangling through the venti-

Duesenbergiana

Thanks to Jim Hoe, Hoe Sportcar, R.D. 2, Westport, Conn., we have some sample prices for Duesenberg repair. These figures were further checked by Paul Pedigo, Beverly Hills, California.

Complete valve job (labor only)	\$160.00
Set of oversize exhaust valves...	85.00
Rings (parts)	22.00
Rings (labor)	30.00
Pistons (parts) @ \$12.00.....	96.00
Rod Bearings (rebabbiting old shells)	100.00
Replacing old rod bearings with cadmium silver bearings (labor and parts)	80.00
Regrinding crankshaft	45.00
Rebabbiting main bearings.....	16.00
New timing chains.....	90.00

In addition to the above work, it should be noted that there may be other parts, other labor necessary. Jim Hoe has fenders in stock but he says that he seldom sells one. Duesenberg owners are careful drivers. The price quoted for the

Four 1½ in. Winfield carburetors were mounted on a side-draft manifold designed by Jim Hoe. The body is as light and as functional as could be mounted on the chassis. Sporting enthusiasts in the Connecticut area will probably see Jim at some of the events this year.

Interested in joining the Vintage Sports Car Club? Laurence Pomeroy, president, suggests that owners of vintage sports cars write him c/o *The Motor*, Bowling Green Lane, London E.C. 1, England. Mr. Pomeroy says that many of the cars listed in *Classic Comments* are eligible. Those of you who have seen some of the British fan publications know how admirably our island cousins can organize and operate a club for auto enthusiasts. If you feel that your car qualifies, write Mr. Pomeroy.

In sharp contrast to Bob Gottlieb's Chrysler is the hybrid classic built, or assembled, by Dick Saunders, Rensselaer, N. Y. From the picture, the car looks like one of the LeBaron Packard speedsters. Actually, the speedster part of the body was pirated from an Auburn speedster. Hood and chassis are, of course, from a '37 Packard. The engine, now in its third car, is a Marmon V-16—America's largest stock engine, boasting an awesome 490.8 cu. in. displacement and rated at 200 hp @ 3400 rpm. Equipped with 15-inch wheels and 8.90 low-pressure tires, the hybrid has been clocked at 17½ seconds for the flying half-mile.

Cadillac fans will recognize the convertible coupe pictured here as one of the "Madame X" models. Just why these were called by such a fantastic title is difficult to see. Perhaps the pitchmen at Cadillac thought something jazzy like a cloak-and-dagger name might help unload the new V-16. Fleetwood, then as now a GM subsidiary, built all V-16 bodies. The "Madame X" series sold for roughly \$1,000 less than the "Fleetwood" series. Bob Crawford's classic (illustrated) was made in 1930, the first year of the V-16, and cost \$5,900 F.O.B. Another V-16 owner, C. M. C. Pullen, has restored a 1931 "Madame X" to almost-original condition. His car is an exact duplicate of the one illustrated, because Cadillac did not change the V-16 until 1932.

A final note of appreciation for the valuable assistance of Jim Hoe, Gordon M. Potter and George Moffitt for their help in the preparation of this and previous columns and then goodbye for this month. Hope to have a Stutz Super Bearcat as car of the month in the near future.

SPECIFICATIONS

Chrysler Custom Imperial Eight
 Engine: L-type, straight 8. Bore and stroke—3 1/2 x 5 ins. 125 hp @ 3200 rpm. Compression ratio, 5.0:1 (raised to 5.8:1 in 1933—horsepower boosted to 135 @ 3200 rpm). Disp., 384.84 cu. ins. Nine-bearing crankshaft six-bearing camshaft. Main bearings are bronze-backed, babbitt-lined. Rod bearings are cast babbitt.
 Other: Transmission—three-speed, plus free-wheeling and automatic clutch; rear axle ratio—4.10:1; wheelbase—146 ins.; brakes hydraulic.



SEE IF you can identify this one. It's strictly a composite oddity, is described in text at right lator hole. Suddenly it dawned on Bob that if this insulation were worn badly, which it was, the heat from the engine compartment would be free to flow directly into the passenger compartment. When new insulation was cut to seal against the bonnet, the front-seat passengers again enjoyed a cool ride.

The other problem was more difficult. No one could think of any reason why the engine should overheat at high speed. The radiator was absolutely clean, the old aluminum water jacket had been replaced by a new bronze jacket—still the engine temperature shot up. To help solve this, Bob cuddled a front fender, his head stuck out over the front of the fender, while a friend rapped the Chrysler up to 65. Then he saw it. The thermostatically controlled radiator shutters which should be open when the engine is warm, were closing at high speeds. Wind pressure was too strong for the thermostat. When this was corrected, the engine ran cool at any speed, gave no further trouble.

valve job includes adjustments to a tolerance of plus or minus .001 in.

If your Duese is behaving like a small Cletrac, Jim Hoe suggests that you have the front-end alignment checked, the steering assembly adjusted, the engine tuned, the valves adjusted. He has found that most Duesenbergs that trundle into his shop for the first time have one or all these troubles.

Jim Hoe is the designer of the special Duesenberg competition roadster mentioned last month. Racing against 19 opponents on a half-mile track, the Duese beat all comers in a standing-start drag—all except a full-racing Maserati, supercharged and burning alcohol. Two XK-120's were three seconds behind; one new Ferrari lost by two seconds; the most potent local hot-rods lagged by 0.71 seconds. And the Duese is built around a standard J engine and chassis.

To build the chassis, Jim Hoe cut down a standard-size frame to 125 ins., lightened it wherever possible by drilling. The engine received a new set of domed pistons which raised the compression ratio to 7:1.

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Rebuilt Engine Racket

(Continued from page seventeen)

and talk it over. As the pressure builds up against wary customers, the salesman lets it be known that the garage can't possibly guarantee the car unless the extra work is done. This usually brings the unfortunate citizen into line. If it doesn't, the continual delay is often effective. The low-income owner of the '40 Ford is no exception. He sighs and consents to the extra work.

Now the work progresses at top speed again. In a day, the car is ready and the owner appears with enough cash to pay the bill as he remembers it. Unh—unh.

Surprised, and getting mad now, the poor dupe complains to the salesman. He points, with understandable heat, at an item which might be between \$35 and \$50, marked "block deposit." The salesman



BOTH PHOTOS on these pages were made in shops of Thomas and Lutzoff of Pasadena; in foreground are beds on which rebuilt engines are thoroughly broken in, assuring good job

patiently explains that the old engine in the Ford was not good enough to meet the rebuilder's requirements. The block was cracked in a couple of places, there were sleeves in the cylinders, the crankshaft was too far gone to be used again. The rebuilder charged the garage and now the garage is charging the customer. After all, it is the customer's fault for letting his engine go so long. . . .

And so it goes. The extra work performed is sometimes listed at prices higher than customary. Extra parts are billed as high as 70% over list. At the bottom of the hideous document, the salesman is quick to point out, is the customer's signature. This authorizes the garage to hold the car until the bill is paid or until arrangements are made to guarantee the garage the amount of the bill.

Here, the resistance of the average customer crumbles. He needs his car so he pays up like a sturdy little soldier and goes home to chew on his defeat in secret. In many cases he won't tell his friends because he does not like to be considered a sucker. Very seldom does he actually complain to those who might be able to do something to help others in the future. And only the most exceptional person will

file a complaint and institute civil suit for recovery of part of the money.

Usually the person who does file suit is licked before he can say a word. This is the beauty of the racket—every step is perfectly covered, well within legal bounds. All the techniques used to separate the customer from his money are absolutely legitimate. Many of them are accepted practice in ethical circles.

To begin with, the work order is essential to all mechanics. The customer should be given a copy to show just what he has authorized but in many cases an honest mechanic or garage owner will not do this. The reason is linked with another step in the process—the telephone call that warns the customer that more work is necessary. If the customer kept his copy of the work order, he would be obliged to sign another order to authorize each new task undertaken by the garage. This would necessitate a trip, usually by foot or street-car, to the garage and few owners are willing to make the trip.

The "block-deposit" gimmick is also standard procedure in the best circles. Manufacturers of rebuilt engines exact penalties from the retailer for cracks in the block, sleeves, cylinders so worn they can't be bored and cleaned to forty-thousandths of an inch oversize, crankshafts and camshafts too far out of round to reclaim, and damaged connecting rods. The customer should pay this penalty, but he should also be given a chance to examine his old equipment if he wishes. Rarely is an engine a total loss. Pasadena, California engine rebuilders Thomas & Lutzoff, the largest wholesalers in the West, charge 75¢ for each bad rod, \$5.00 for each minor crack in the block, \$8.50 for removing steel sleeves from a Ford. A '40 Ford block in completely unusable condition costs \$43.00 of the retailer's deposit.

Unscrupulous operators have taken the "block-deposit" clause and hugged it to their bosoms. A woman, who asked if she might see the block she was paying \$50.00 for, was told that the garage did not know where the block was and couldn't care less. The sharp boys were not quite so lucky with another customer. He had removed the engine himself and trucked it to the garage and he knew the condition of his old block. He returned, after refusing a refund of \$22.00 out of his \$50.00 deposit, armed with his automobile registration slip, bearing the motor number, and demanded to inspect the block again. He was shown a block with the motor number obliterated but refused to accept it as his own. Luckily, the mechanic who had helped him tear the old engine out of the car had also checked the condition of the block. Upon hearing this,

the sharks offered to up the ante from \$22 to a \$30 refund. The customer stood pat and filed a claim with the Small-Claims Court. On the morning the hearing had been scheduled, he received a special-delivery, registered letter, containing a check for \$50.00 and a note informing him that the garage couldn't be bothered to fight the claim.

The right to hold the car in lieu of payment is also part of standard business practice. And the excessive carrying charges are not at all illegal because laws governing interest rates do not apply to this kind of installment contract.

If you have already taken a beating from one of these engine-exchange outfits or if you get taken sometime in the future, you can have a mild revenge. Your money is gone for good, but if you complain to the Better Business Bureau, your complaint will be referred by the Bureau to the firm and an explanation will be requested. If no satisfactory explanation is forthcoming, your complaint will be listed as unanswered and prospective customers who write the Bureau for information will be advised of that fact. You can also complain to the agency responsible for licensing the firm. In Los Angeles, the Police Commission has the power to grant and revoke licenses of engine-rebuilding and engine-exchange firms. If there are a sufficient number of complaints against any one establishment, an investigation will be launched.

The best time to investigate, however, is before you lose your money. Nothing will insure you against loss as surely as a knowledge of the businessman with whom you are dealing. If you already know an honest, competent mechanic, get him to arrange the engine exchange. Any holder of a retail license can buy rebuilt engines from the wholesalers. Any garage has the necessary equipment and tools to rip out your old engine and install the rebuilt one. The guarantee is given by the wholesaler, or manufacturer as they are often called, and will be the same regardless of who does the installing.

If you don't know a reliable mechanic, ask your friends. If they can't help you, use the same care in selecting one that you would exercise in the selection of a doctor. Watch for misleading or unethical advertising; be cool toward high-pressure tactics. There is a lot of money at stake. When you have selected one that seems to be good, write the Better Business Bureau, giving his name and business address. They will search the files and tell you if he has a record of unanswered complaints.

Unless you are personally acquainted with the mechanic, have him fill out the work order completely, drawing lines through blank spaces, and **KEEP A COPY FOR YOURSELF**. Now you have some legal protection against padding.

You may lose your entire block deposit,

especially if you have run your engine too far in poor condition. Engine wear accelerates quickly once the bearings are loose and the pistons are rattling around in too-large cylinders. But if you have reason to believe that your engine is in sound condition you should be suspicious of a high penalty charge and demand to see the faults.

It is perfectly possible that your car will need extra work. A clutch does wear out and is cheaper to replace when the engine is out of the car. Carburetors need cleaning, high-tension wiring may need replacing, etc. Might as well do it all at once, but watch the charges.

If you decide to pay for the job in installments, go to a bank for the loan. Interest rates will be low and often your car will be sufficient security. If your car will not be sufficient security, it might be wiser to put the engine-rebuilding money into a newer model.

By this time you may be ready to chuck



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the idea of buying a rebuilt engine at all. That would be an error, because rebuilt engines are very serviceable. Taxi fleets report 125,000 miles on their rebuilt engines; trucking concerns use rebuilds extensively. Pistons, pins, rings, valve guides, bearings, timing gears or chains, and some other old parts are all replaced by new. Machining is done to factory prescribed tolerances. A rebuilt engine is a better bargain than a new engine; cheaper and faster than a complete overhaul of your present engine. Fifty-thousand rebuilt engines are sold every year in the six western states and the number is climbing steadily.

Like the man said, "This used to be a nice, clean little business." It's growing now, spurring ahead too fast to police itself. Until the industry has a chance to set up its own safeguards, you and I and that man with the '40 Ford will just have to look out for ourselves.

Car Quiz Answers

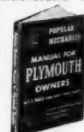
(Continued from page twelve)

1 (c), 2 (c), 3 (b), 4 (a), 5 (d).

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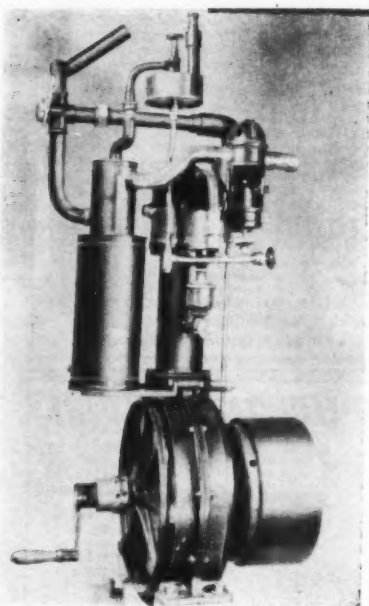
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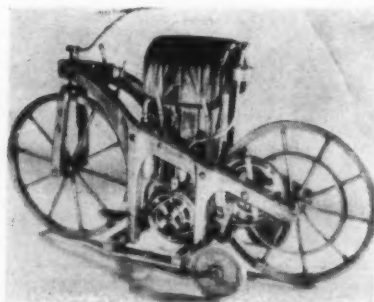
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HOW IT BEGAN

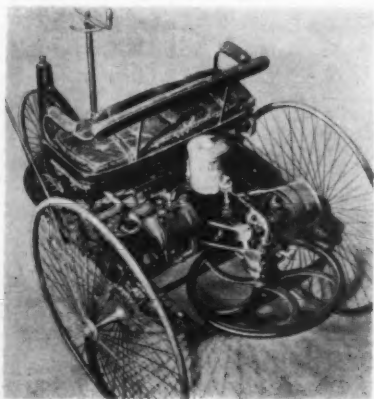
by Kenneth Kinkaid



WORLD'S FIRST successful small I.C. engine was patented by "Papa" Daimler in 1885, had 28 cu. ins. displacement, developed 1½ bhp at 700 rpm. Our present global automotive industry stems directly from this humble machine



BASIC DESIGN for future motorcycles was grasped by Daimler when he built world's first successful gas-engine-equipped vehicle in 1885. Single-cyl. engine developed one-half bhp



I COULD move the world, if I could get a lever under it," said Archimedes, as he unconsciously forged the future through his science. In 1883, the world of human activity was wrenched abruptly into a new orbit when Gottlieb Daimler was issued a patent for what rapidly proved to be the first practical design for a lightweight internal combustion engine. Daimler, while chief engineer at the historic Otto and Langen works at Deutz, had been commissioned to build a toy engine, fell upon the job fervently in collaboration with his inseparable colleague Wilhelm Maybach. They built the toy, invented glow-tube ignition in the process and, realizing that they had thus solved the riddle of the lightweight internal combustion engine, retired to the little town of Cannstatt—and research.

Results followed rapidly and in little over a year Daimler had his patent. Experimental engines were fabricated there in the family home and, in 1885, the first successful, four-cycle internal combustion engine-propelled vehicle was toolled over Cannstatt's cobbles by Daimler's eldest son. The vehicle was a motorcycle—and really a fantastic prophecy of things to come. Study the illustration; note the low-slung vertical engine, the typical frame, the handlebars, forks, belt drive! With a single brilliant stroke of amazing mechanical insight, Daimler had grasped and organized the fundamentals that rule 'cycle design today. Even his little jockey wheels are the "latest thing" for attaching to small children's bicycles!

Carl Benz of Mannheim—an equally great pioneer and great mind—almost simultaneously perfected the two-cycle engine, built his first three-wheeler in the same year. And Daimler, having cracked the problem of getting power to the rear wheel, constructed a successful four-wheel job in '86. Daimler, Maybach, Benz: they discovered the workable truth where numberless others had failed. They unleashed a force which has transformed the earth in a million ways, fractured the flow of history and sent it careening off in a new, undreamed-of direction—a direction that still ran parallel to one of Western civilization's major drives: the conquest of space.

Daimler immediately invented the differential, followed that with water cooling of his engines. He used tubular chassis and circulated the coolant through the tubes, using them as radiators! But Germany was backward and Daimler took his equipment to France in 1889. There, the steam car was already firmly established,

and the old engineer realized that success for him required a receptive public.

He was fully correct, Panhard et Levassor promptly acquired the Daimler patent rights for France, and both Panhard and Peugeot began building their automotive reputations upon these sound, though revolutionary Daimler engines. Papa Daimler went home, and to work.

By late '89 he had perfected and patented the first Vee-twin. It had 3x5 in. bore and stroke, developed about 3½ bhp at 750 rpm. For the times, it was a marvel of low power to weight and it became an outstanding car engine. Again, Daimler's thoughts were decades ahead of his time, were finally digested and accepted by builders of autos, cycles, aircraft.

German capital gradually became aware of the fiscal implications of the technical revolution stemming from Cannstatt and in 1890 the Daimler Motoren Gesellschaft—Corporation, if you wish—was formed and, after a brief struggle between research-minded Daimler and Maybach on the one hand and the financial directors on the other, a policy of unending search for advanced ideas was officially adopted by the company. Daimler-Benz A.G., today, swears by the wisdom of that always-followed course.

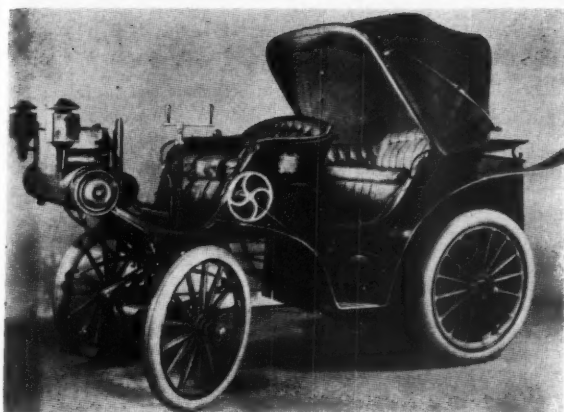
D.M.G. produced the first fully enclosed car in '93; it was also the first to use a wheel for steering. A '94 Panhard was the first car to use the modern power train layout of engine in front, driving through clutch and transmission to bevel gear differential and thence to the rear wheels via sprockets. The first road race—Paris to Rouen—was held in '94 and the first four places were filled by Daimler-engined cars. There were 11 other finishers, out of a total of 21 cars at the start. And in '93 the Daimler Motor Syndicate Ltd. was formed in England—a separate company with a great future ahead.

The glamorous phase of Daimler history began when a wealthy sportsman bought heavily into the firm. High performance was his passion and he, Daimler and Maybach saw eye to eye. The patron, Emil Jellinek, put up the funds for the most brilliant vehicle ever attempted and the first Daimler-Mercedes—named for Jellinek's daughter—purred out of the Cannstatt experimental department in 1900, a few months after Daimler's death.

The new car had a 35 bhp in-line four-cyl. T-head engine, used now-universal poppet valves, plus Bosch make-and-break magneto ignition. Its crankcase was of cast aluminum, chassis layout amazingly advanced. In terms of style, speed, and design, Mercedes became the standard of the automotive world—the source work, the model to imitate, if you could.

This was, in a sense, the climax of

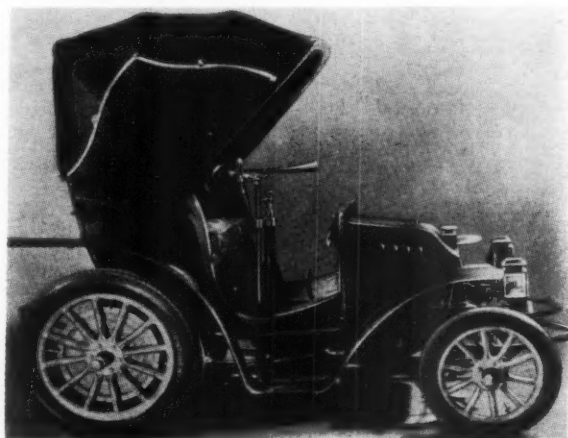
FIRST SUCCESSFUL two-stroke vehicle was Carl Benz' tricycle, also built in 1885. Benz and Daimler developed their ideas independently



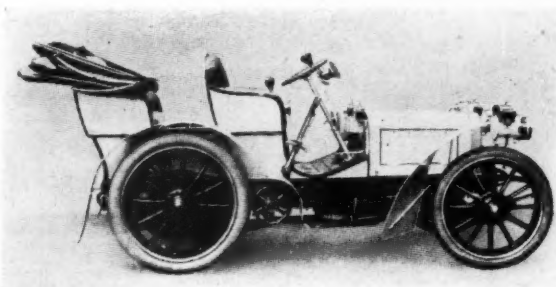
RECORD-BREAKER of 1897 was this 7½ bhp convertible which won the Dolomite Rally that year. Engine was a 134 cu. in. twin; 25 mph was top



CANOPIED CARRIAGE was produced at Cannstatt in 1894, had a 3½ bhp parallel twin engine. Note steering wheel, honeycomb radiator

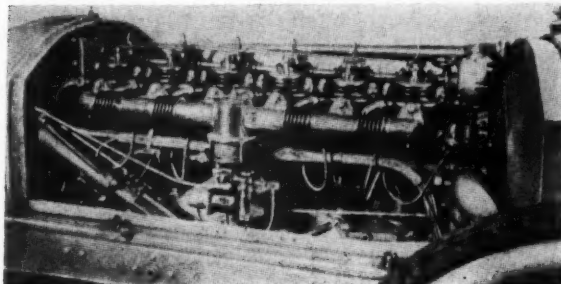


PAUL DAIMLER, the pioneer's son, became a famous engineer in his own right. Produced in 1899, P.D. (above) car was highly refined, used a better twin engine which extracted 8 bhp from a mere 82 cu. ins.



MARVELOUS MUTATION—The first Mercedes was produced by Daimler in 1900, was such a great advance over the practice of the time that almost every manufacturer was forced to copy it. Four-cyl., T-head engine pulled 35 bhp. This model was first modern-type automobile

FIRST MERCEDES overhead camshaft engine (right) was produced in 1906. It anticipated modern short-stroke design with 5.5 in. bore, 4.7 in. stroke. Displacement was 670 cu. ins., gave 100 bhp at 1400 rpm

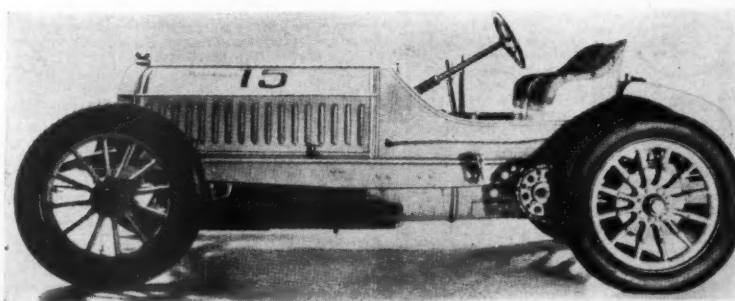


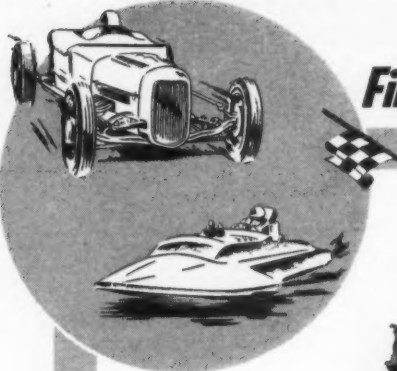
100 BHP racing machine (below) of 1906 was one of many models that made the Mercedes name synonymous with speed and victory. These 100 bhp jobs were famous in U.S., top speed was over 80 mph

Daimler's achievement: "scooping" the technical brains of the world, laying down the definitive pattern for the future. There were countless great and thrilling achievements to come, but that's another story.

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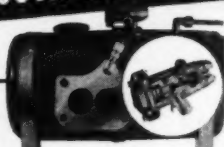
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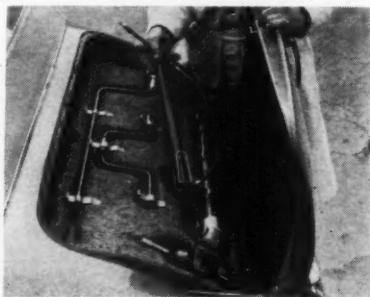
NEWHOUSE AUTOMOTIVE INDUSTRIES
5803 E. Beverly Blvd., Dept. M-7, Los Angeles 22, Calif.

Sports Trial

(Continued from page thirty-three)

the Sunbeam-Talbot was its top. Its lines are nicely proportioned and the car looks equally smart with the top up or down. The structure is hand operated, but not cumbersome. The joint across the top of the windshield is leak-proof and the seal around the windows is excellent. When the unit is erected, the last step of the procedure is to move a small lever on either side of the rear seat. These levers actuate eccentrics which apply just the right tension to the whole assembly making it wrinkle-free and rattle proof. In the "down" position, the top folds into a generous well aft of the rear seat and is covered with a neat canvas boot. A nice touch here is the provision of invisible clips which secure the boot to a chrome trim strip. The whole thing is a good job.

The upholstery suggests the best British workmanship and attractive plaid seat covers were fitted to the car tested. Other interior features include a commodious glove compartment in the instrument panel, a smaller one in each front door, and an ashtray thoughtfully placed on the



LARGE TOOLS are stowed in rattle-proof panel nested in trunk lid; small tools are carried in sponge-rubber case in built-in compartment

transmission tunnel ahead of the front seats. The door handles pull straight back in an easy motion. There are minor criticisms, for instance, the window cranks on the doors were quite stiff and the glove compartment needs a more positive latch since it came open occasionally of its own accord, and also there seems no point in having the hood latch on the right where the driver must reach over for it.

The flush-fitting panels over the rear wheels come off easily for tire changing, and blend very harmoniously with the car's lines. The spare wheel is concealed in a separate compartment under the trunk at the rear, which by the way, is roomy enough for most light luggage.

Altogether the Sunbeam-Talbot 90 merits very serious consideration by the purchaser who wants good performance and comfort in a car that is small enough to be highly maneuverable in present day traffic conditions. The car tested lists for \$2645 in this country. Several years ago the purchase of a car of this type was

(Continued on page forty-nine)

SELL 'N' SWAP

Requirements are: copy limit of 25 words (not including name and address), first come, first served; we reserve the right to edit where necessary; we are not responsible for accuracy of descriptions, although we will reject any misleading statements. This service is not open to commercial advertisers. No ads will be accepted if payment is not made in advance and no communications will not be acknowledged. Address your request to Sell 'N' Swap. The charge is just one dollar—Editor.

WANTED—Complete service information on 1914 Buicks, models 54-55. Crest Oldsmobile Corporation, 1712 Jerome Avenue, Bronx 53, New York.

WANTED—Rear bumper, tail lights, instruments, spare tire covers, other parts for 1931 Cadillac Roadster. Jimmie Eastland, 108th AAA Brigade, Ft. Bly, Fort Bliss, Texas.

WANTED—Complete information and price on over-drive for '50 Chevy; Columbia or equal performance. R. H. Coddington, 505 Broad St., New Bern, North Carolina.

FOR SALE—1937 Cord, model 812, supercharged convertible coupe. Transmission good, shifter, motor needs some work, body excellent. \$700. George Joseph, 1350 Sherman, Denver, Colo.

FOR SALE—1937 Westchester Cord, paint weathered, but not bad car. Good tires, needs U-joints. Price \$450. as is. Leopold Garcia, Box 111, Bernalillo, New Mexico.

WANTED—1936 Ford V-8 tudor deluxe without trunk. Must be very good condition, no junk wanted. Send picture, information on price, condition. Tom Probst, 4144 Brookside Ave., Minneapolis 16, Minn.

FOR SALE—1937 Cord-Cadillac. Sport model Cord coupe with 1931 Cadillac engine. Car now being painted, upholstered. Also have supercharger for above. W. H. Ostenberg, Box 801, Scottsbluff, Nebraska.

FOR SALE—Ford V-8 '60" motor, transmission and radiator. \$125. or complete car for same price. Drive it away, or will crate and ship parts. James W. Lemke, 825 Palace Ave., Santa Fe, N.M.

WANTED—1935 or 1936 Ford roadster or phaeton (condition not important), body or car. Contact T. G. Griggs III, The Plaza, 2530 Monroe St., Toledo, Ohio.

FOR SALE—1919 Stanley steamer parts; boiler with steel for retubing, burner, chassis. Will consider trading Stanley engine for large White engine. Ivan E. Busby, Box 332, Abbotsford, B.C., Canada.

FOR SALE—Two 1937 Cord sedans, one Beverly, Model 812, supercharged, excellent condition throughout, and one Westchester sedan, for parts. Both cars, \$1250.00. Forced to sell. Jack Stewart, 612 So. Thornburg, Santa Maria, California.

WANTED—1949 or 1950 Cadillac engine complete. Gordon Hanahan, 3940 S. 41 St., Milwaukee, Wis.

FOR SALE—Wiring diagrams, tune-up and electrical specs on nearly all makes and models back to 1913, some older. Some rear-end interchanges. Write Terry Hughes, P.O. Box 741, Banning, Calif.

WANTED—1937 Cord (prefer supercharged convertible). Send all information including price and photos, if possible to Earl Ladenberger, 2300 Lovell Ave., Detroit 10, Pa.

FOR SALE—Cord 810 motor, block, standard walls, also Cord transmission case. Good condition. J. K. Howell, 3309 W. Hirsch St., Chicago 51, Ill.

FOR SALE—1933 16-cyl. four-door six wire wheel Marmon sedan, motor good running condition, can be driven to any state. \$600.00. R. V. Mancini, 5545 Cass Ave., Detroit 2, Mich.

WANTED—1936 Packard "12" convertible Victoria. Fair shape, reasonable price. Send photograph, price to: Frank J. White, 16 Millard Terrace, Glen Ewing, Trenton, New Jersey.

WANTED—Duesenberg "J" or "A". Used speed equipment for 1949 Mercury, Ford and Olds 88, including superchargers. C. S. Clemans, Chief Engineer, Radio Station WSWN, P.O. Box 355, Belle Glade, Fla.

WANTED—1941 Cadillac 60 Special Fleetwood sedan. Must be in perfect and immaculate condition and have under 30,000 original miles. Send details and snapshot to A. Ward Shanon, 2444 So. Orkney, Philadelphia, Pennsylvania.

WANTED—1932 or 1933 Lincoln V-12 double entry sport sedan or other convertible sedan. May be interested in body only. John M. Allen, 478 W. 7th Ave., Columbus, Ohio.

WANTED—Model A, T or B channeled street roadster, Ford or Chevrolet mill, finished or semi-finished. Keith Troutwine, Willoughby Chevrolet, Richmond, Indiana.

FOR SALE—Duesenberg model A engine only. Completely rebuilt and balanced. \$345. J. Sharp, 1586 South Grape, Denver, Colo.

FOR SALE—Cord convertible 1937 Fez red, white top and sidewalls. Rebuilt in '49, 812 Lycoming engine. Price \$1500.00. Raymond Lewis, 3910 West Third St., Dayton 7, Ohio.

WANTED—Dual or triple carb manifold for Lincoln zephyr 1939, preferably used. Must be priced low. Bunky Thornton, R2, Grubhill Road, Round Lake, Ill.

WANTED—Companies to buy ideas for development in the automotive field. Russell D. Hasty, Apt. #7 3804 Douglas, Des Moines, Iowa.

WANTED—Engine and rear axle from late Doble Steamer. State price. Charles Bageli, 6431 Montgomery Road, Cincinnati 13, Ohio.

FOR SALE—37 Cord motor, transmission and body parts. Charles Brostoski, 483 So. Orange Ave., South Orange, New Jersey.

WANTED—1936-37 copies of "The Accelerator," the Cord Corporation employee's magazine. Jack Carew, Green Lake, Wis.

WANTED—Fair Rolls-Royce. Send price and photographs to David Nelson, 314 Columbia Drive, Lake Worth, Fla.

FOR SALE—Equa-Flow exhaust system less mufflers for '49-'51 Olds 88 or 98. Sold new \$67.50. System installed on 50-98 but never used. Sacrifice \$37.50. Ted W. Dahlke, 3126 1/2 Carlton Ave., Lynwood, Calif.

FOR SALE—XK-120, eight months old. Black with red upholstery. Superb condition. Never raced, 3500 miles. Write, wire or phone, Richard Snook, Iowa Falls, Iowa.

WANTED—1928 to 1935 Studebaker President or Commander roadster. Near Ohio. Send price and details. Tom's Speed Shop, 411 S. Jameson Ave., Lima, Ohio.

WANTED—1932 Ford phaeton (bath tub) in original condition. Will buy complete car or just the body. D. E. Laub, 326 1/2 So. 2nd St., Las Vegas, Nev.

FOR SALE—Automobile catalogs, advertisements, photos, etc. on Classic Cars to 1951. Write what you want. John Van Cranebrock, 2653 Asbury Ave., Evanston, Ill.

FOR SALE—1941 Hollywood model Graham (Cord body) four-door sedan. Excellent condition. \$1000.00 car or if your family has outgrown your MG, will consider trade. R. A. Berry, Shelby, Ohio.

FOR SALE—Two Italmecanica superchargers for Crosley, both new, \$175.00 each. DeWarren Bridges, X-L Industries, 1622 Silva St., Honolulu, T.H.

WILL SWAP—Canadian automobile folders for American folders. Will answer all letters. J. T. Hammett, 307 Main St., Toronto 13, Ont., Canada.

FOR SALE—1912 Buick, four-cyl., right hand drive. All original equipment except radiator. Needs new wooden body, tires and tubes. Eugene Herron, 1903 W. 6th St., North Platte, Neb.

WANTED—Duesenberg SJ. State price and chassis condition; body condition not important. L. R. Domarsky, 3105 Keyes St., Flint 5, Mich.

WANTED—Ads for cars 3 to 26 years old. Will pay up to \$2.00, depending on value of ad. Leon Miller, 19 William St., Mt. Vernon, N.Y.

WANTED—Late model Mercedes roadster or convertible. Either top original or good rebuildable condition. Send picture and information. D. McLaughlin, 4016 Globe Ave., Culver City, Calif.

FOR SALE—Parts for Hispano pre-1930. All new: camshaft, valves, pistons, nameplates, Jaeger speedometers, oil gauge, rings, battery cables. Original. Al Kern, 531 E. 81st, New York 28, New York.

WANTED—Information on how to channel 1940 Ford coupe and where to obtain parts for Columbia over-drive. Perry Grant, 8811 So. Racine, Chicago 20, Ill.

WANTED—34x4 straight side tires for antique car. Bruce H. Atchley, Box 146, Loudon, Tenn.

WANTED—SJ Duesenberg. Send photo and description to John G. Stimmeltz, Buffalo Center, Iowa.

WANTED—'25-'35 classic car, Dues, Packard, Rolls, etc., in top condition. Describe and send picture if possible. Cash in full if priced right. Charles R. Stuart, 1819 Niadrara Dr., Glendale 8, Calif.

FOR SALE—Model T Ford coupe. Completely renewed, runs perfect, new tires, model A ignition, spare parts, repair manual. \$2000. Dave Riehl, 2530 Las Positas Rd., Santa Barbara, Cal.

WANTED—Technical data on streamlining comfortable sports car of any make, new or used. Make offers plain, photo if possible. Henry H. Varner, 8 South Summit St., Akron 8, Ohio.

CUSTOMIZING—Any car redesigned on paper, full drawings and details sent. Reasonable. Send make, year, body type to Jack F. Harris, 3046 Zaruba St., Pittsburgh 10, Pa.

WANTED—Overhead valve setup for Willys motor. Must be priced within reason. Laurence Phillips, Box 141, Loleta, Calif.

FOR SALE—1931 Buick custom sports roadster with rumbleseat, new Spanish grain red leatherette upholstery in front seat, doors and rumble seat. Best offer over \$550 takes. James F. Mallas, 5547 W. Roosevelt Dr., Milwaukee, Wisconsin.

FOR SALE—Duesenberg A engine, 263 c.i. Complete with transmission, all accessories except carburetor. 2000 actual miles. Will sell for \$350 or trade for 1949-'50 Cad V8 or '51 Chrysler V8 engine. Chas. M. King, 2713 Virginia Ave., Newport News, Va.

FOR SALE—1935 Auburn supercharged sports coupe, \$300. Solid body good leather, all original, dual ratio, some repairs needed. Write: David Stratton, 54 Academy St., Westfield, New York.

WANTED—1936-'37 Duesenberg Phaeton in good condition. Must be located in Southeast U.S. Send complete information and photo. W. D. Ayala, 211 N. Franklin St., Tampa 2, Fla.

FOR SALE—1932 Hupmobile, only 38,000 miles. Body and engine at zenith of perfection, leather upholstered rumble seat and radio and heater. Vircent Capasso, 554 East Main St., Norristown, Pa.

FOR SALE—1932 Packard 8, convertible roadster, 22,000 actual miles, needs top, good mechanical condition. Best offer. D. A. Foley, Rockingham, Va.

FOR SALE—1936 Cord model 810 sedan body and upholstery excellent. Motor good, transmission needs work. George Vacek, 2101 S. Fairfield Ave., Chicago 8, Ill.

SELL OR SWAP—Indian Scout motorcycle engine and transmission suitable for 3/4 midget, etc., for speed equipment or accessories for '40 Olds 6. Dick Smith, Lakota, Iowa.

SELL OR SWAP—Midget race car, \$60.00 quick-change rear, tubular front, Franklin steering. Motor has Myers setup. Beautiful body. Asking \$600. or swap for late car. Robert E. Johnston, 5 Center St., Danbury, Conn.

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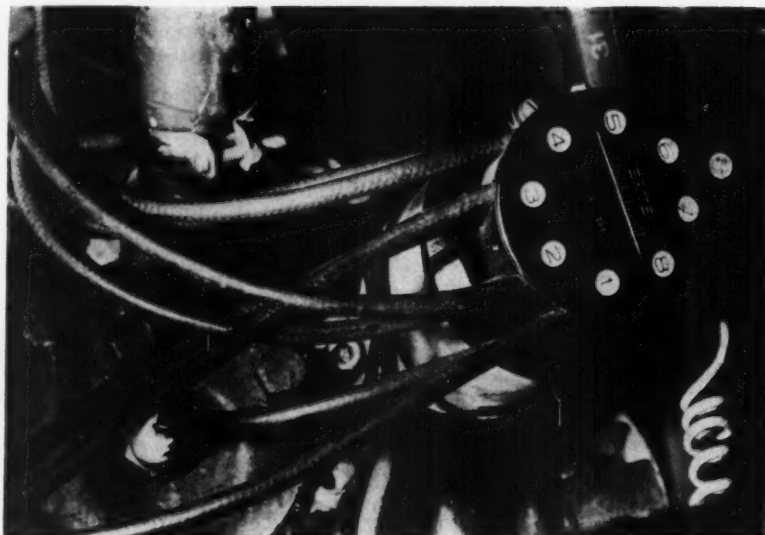
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ACCESSORY TRIALS . . .

by Fred Bodley



THE SCINTILLA VERTEX Magneto embodies the functions of a complete battery ignition system, yet is entirely independent of the car's battery. The same hot spark is delivered to spark plugs regardless of weak cells, poor connections or low specific gravity. Due to the principles of magnetic force, the higher the rotational speeds the more intense is the delivered spark. Where the battery ignition system tends to break down at high speeds, due to its greater mechanical complexity, the magneto ignition holds an upward curve.

As a Swiss import, it has the same traditional craftsmanship that characterizes the country's fine watches. The materials are of the best, including platinum breaker points.

The Vertex magneto operates on the same principle as other Scintilla types: a rotating magnet, stationary armature and condenser placed between primary and secondary windings. The automatic advance is by centrifugal force acting upon plates and fly weights of special design. There are no governor springs to grow tired and affect the rate of advance.

The design is clean and compact, the dimensions of the drive are standard, and identical with the type of distributor which the magneto replaces. This makes the installation as simple as removing the old distributor and installing the Vertex in its place. No adapters or gimmicks are required.

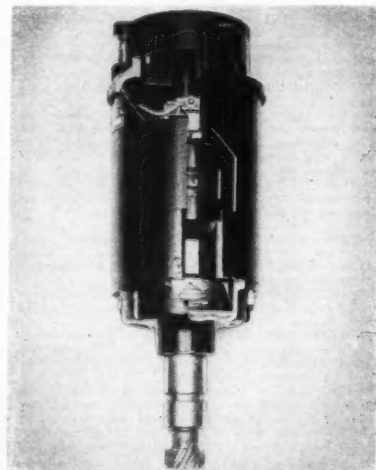
The Vertex magneto was tested on a '49 Mercury with 30,000 miles on the speedometer in comparison with stock ignition system which had been thor-

NEAT AND compact installation of the Vertex magneto on a 1949 Mercury. Only addition was a grounding relay, very few tools were needed

oroughly checked on an ignition analyzer, coil test made, and ignition accurately set with a timing light.

TABLE OF PERFORMANCE

ACCELERATION TRIALS	(Seconds)	
	Stock	W/Scintilla
Indicated 0-60 mph through gears	:17.71	:16.78
Indicated 30-60 mph high gear	:12.30	:12.11
Indicated top speed second gear	62 mph	66 mph



CUTAWAY VIEW of magneto. Drive unit may be adapted to suit any type of engine design

Sports Trial

(Continued from page forty-six)

of questionable wisdom because of rather sketchy spares and service facilities. Today with British cars commonplace on America's highways the prospective purchaser no longer need feel hesitant on this score. As one of Britain's largest auto manufacturers, the Rootes Group is particularly aware of the importance of spares and service, is providing an ever-expanding network of these facilities in the U.S.

TABLE OF PERFORMANCE

DYNAMOMETER TEST

25 mph (full load)	20 road hp
40 mph (full load)	33 road hp
60 mph (full load)	43 road hp

ACCELERATION TRIALS (SECONDS)

Standing start 1/4-mile	:22.30
0-30 mph through gears	:06.12
0-60 mph through gears	:21.78
10-60 mph in high	:30.86
30-60 mph in high	:24.33

TOP SPEED (MPH)

Fastest one-way run	84.34
Average of four runs	81.08

FUEL CONSUMPTION (MPG)

At a steady 30 mph	25.9
At a steady 45 mph	23.4
Through light traffic	28.0
Through medium traffic	19.6
Through heavy traffic	15.3

BRAKE CHECK

Stopping distance at 30 mph	36 ft. 8 ins.
Stopping distance at 45 mph	84 ft. 9 ins.

GENERAL SPECIFICATIONS

ENGINE

Type	Four cyl. pushrod ohv
Bore and Stroke	3.19 x 4.33 ins.
Stroke/Bore Ratio	1.36:1
Cubic Inch Displacement	138.2
Maximum Bhp	70 at 4000 rpm
Bhp/Cubic Inch	.506

DRIVE SYSTEM

Transmission: Manual Shift, Synchro-mesh. Overall gear ratios:

Low 13.905, Second 9.633, Third 5.811, Top 3.9

Rear Axle: Hotchkiss drive, 3.9:1 hypoid bevel gears

DIMENSIONS

Wheelbase	97 1/2 ins.
Tread	47 1/2 ins. Front, 50 1/2 ins. Rear
Overall Length	167 1/2 ins.
Overall Height	39 ins.
Overall Width	62 1/2 ins.
Road Clearance	6.6 ins.
Weight (Test Car)	2890 lbs.
Weight/Bhp Ratio	36.6:1
Weight/Road hp Ratio	65.8:1
Weight Distribution (Front to Rear)	51/49

Lincoln Motor Trials

(Continued from page thirty-five)

BRAKE CHECK

Stopping distance at 30 mph	44 ft. 11 ins.
Stopping distance at 45 mph	101 ft. 3 ins.
Stopping distance at 60 mph	238 ft. 0 ins.

GENERAL SPECIFICATIONS

ENGINE

Type	L-head V-8
Bore and Stroke	3 1/2 x 4 3/8
Stroke/Bore Ratio	1.25:1
Cubic Inch Displacement	336.7
Maximum Bhp	154 @ 3600
Bhp/Cu. In.	.457
Maximum Torque	265 ft. lbs. @ 2000 rpm
Compression Ratio	7:1

DRIVE SYSTEM

Transmission—Conventional three-speed. Ratios: First—2.526:1, Second—1.518:1, Third—1.0:1, Reverse—3.158:1

Optional Overdrive—722:1

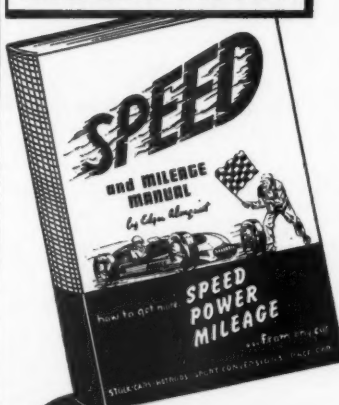
Hydra-Matic Ratios: First—3.8195:1, Second—2.6341:1, Third—1.4520:1, Fourth—1:1. Reverse—4.3045:1

Rear Axle—Semi-floating, Hypoid, Hotchkiss drive. Ratios available: 3.31:1 (Plains), 3.91:1 (Standard), 4.27:1 (Station Wagon).

DIMENSIONS

Wheelbase	121 ins.
Overall Length	214 ins.
Overall Height (loaded)	63.6 ins.
Overall Width	76.7 ins.
Tread	Front—58.5 ins., Rear 60.0 ins.
Turns, Lock to Lock	5 1/2
Weight (Test Car)	4375 lbs.
Weight/Bhp Ratio	28.4:1
Weight/Road Hp Ratio	46.0:1
Weight Distribution (Front to Rear)	55.4/44.6

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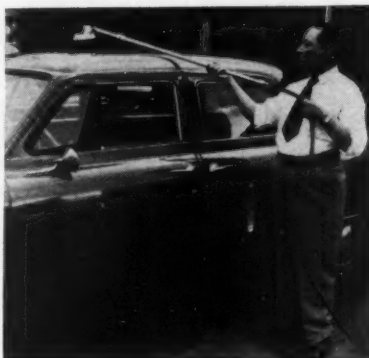
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TRADE



TOPICS

THE MASTER FOUNTAIN BRUSH WILL SHORTLY BE AVAILABLE . . . at a price which should make it "must" equipment for the Sunday motoring maintenance "expert." Easy to operate, light and simple in construction, equipped with an ingenious universal joint arrangement which makes difficult corners accessible, a valve action



which provides a rinse with a flick of the finger, and economical with soap, this brush will enable Mr. Car Owner to do a swift and professional wash job on the family car. For details write Master Fountain Brush Co., 522 Hazard Ave., Los Angeles 63, Calif.

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A NEW FULLY AUTOMATIC DEVICE FOR KEEPING AUTO AND OTHER INTERNAL COMBUSTION ENGINES WARM even in sub-zero temperatures has recently been placed on the market. Called Redi-Warm, it consists of three simple units that may be quickly and easily installed. It will work on all makes of cars employing solenoid switch starters (including Fords, which require only a small wiring change). Redi-Warm is patented; a product of Cray-Lincoln Engineering and Manufacturing Co., North Walpole, N.H.

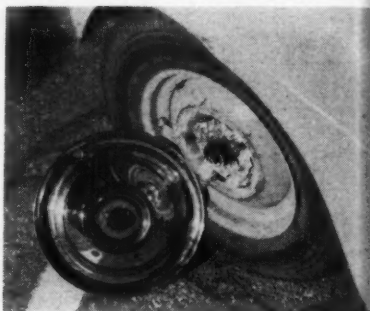
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FOR SAFETY AND MORE ENJOYABLE DRIVING, the new Polarvision Light is now available to motorists for the first time. Based on the scientific principle of complementing and reducing oncoming headlight, streetlight, etc., glare by adding low spectrum light to it, the Polarvision Light fits all cars, trucks, and it is easy to install. This new light discovery utilizes an "Ergon Glass Lens" to produce a "Black Light" (barely visible to the eye) that shines down on the inside of a windshield without interfering with the driver's visibility. Light is encased in high grade chrome holder and works off the car's central lighting circuit. Complete price: \$6.95. Available from Electronic Development Co., Box K-17716, Los Angeles 34, Calif.

★ ★ ★

THE WEBER TOOL COMPANY HAS ANNOUNCED A PROGRAM to custom build a limited number of their outstanding racing engines. These engines will be basically Ford and Mercury, built to the individual customer's specifications. A special hard steel cam is used, rather than the conventional cast iron cam. They are built in standard stroke, 1/4-in. stroke or 3/8-in. stroke. All engines are completely dynamically balanced. On these engines the Weber Company can furnish Weiland or Offenhauser equipment.

AMONG INTERESTING ACCESSORY IDEAS CURRENTLY ATTRACTING ATTENTION ON THE AUTOMOTIVE SCENE is the Franklin Illuminated Hub Cap. Perforations in the hub cap produce rings of light when the car is in motion. Mr. Joseph Franklin, the inventor, states that his hub cap has proved of positive value as a safety feature, especially in fog, rainy weather.



CREATED BY ONE OF AMERICA'S FOREMOST DESIGNERS for Parfait, Inc., of Chicago, Ill., the Personalized Monogrammed "Coat-of-Arms" adds beauty and prestige as an adornment on cars. Crafted in heavy "goldline" copper with deeply etched flying horse, rampant lion and gladiator's arm, denoting speed, courage and strength, this is emblazoned on hand-colored fields of crimson, green and black, crowned



by a plumed coronet, and may be used on the doors, dashboard, fenders or hood, as well as motorcycles and bicycles. A self-vulcanizing adhesive on the back of the shield makes a permanent attachment which, if desired, can be removed without harm to the finish. Priced at \$1.00 each, "Coat-of-Arms" are available in practically every letter of the alphabet. On sale at automotive supply stores everywhere.

PREVIOUS MOTOR TRIALS

MG-TC, 1950 Studebaker Champ...	Oct. '49
1950 Buick Special	Dec. '49
1950 Ford V8	Jan. '50
1950 Hudson Pacemaker	Feb. '50
1950 Plymouth	Mar. '50
1950 Mercury	May '50
1950 Nash Rambler	June '50
1950 Oldsmobile 88	July '50
1950 Chrysler New Yorker	Aug. '50
1950 Chevrolet	Sept. '50
1951 Kaiser	Oct. '50
1951 Henry J.	Nov. '50
1951 Nash Statesman	Dec. '50
1951 Ford	Jan. '51
1951 Packard 200	Feb. '51
1951 Hudson Hornet	Mar. '51
1951 Mercury	Apr. '51
1951 Chrysler V-8	May '51
1951 Studebaker V-8	June '51

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Trend

Autocessories, Ltd • Division of Arnolt Corporation • Warsaw, Indiana, U.S.A.

New CATALOG!

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Accessories



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EVERYTHING FOR YOUR M G — FROM ONE SOURCE!

CONVERTIBLE TYPE WINDWINGS and AERO WINDSCREENS — POLISHED CAST ALUMINUM VALVE COVERS and INSPECTION PLATES — TD BADGE BARS — ARNO-LITE DRIVING LAMPS and SPOT-LIGHTS — ASSIST GRIPS — UNION JACK DECALS — STEERING WHEEL MEDALLIONS — ARM REST GLOVE COMPARTMENTS, etc.

Make S. H. Arnolt, Inc., Chicago, your headquarters for MG Parts, Sales and Service, as well as your needs for Joseph Lucas & Co. and Smith's Motor Accessories Ltd. Parts, Products and Service.

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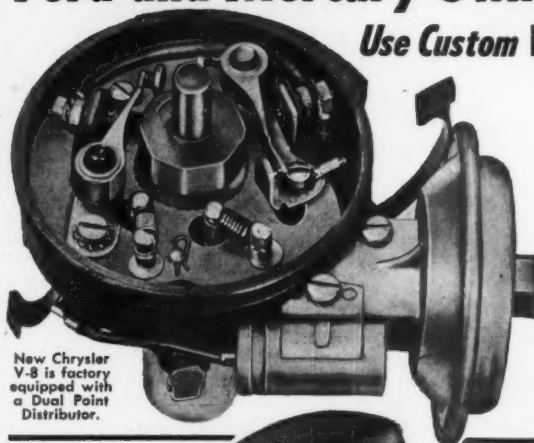
Ford and Mercury Owners!! Stop Burning Points!

Use Custom DUAL POINT DISTRIBUTOR CONVERSION KIT adaptable to 1949-51 FORD & MERCURY

- Eliminates missing and bucking.
- Longer point life.
- All wearing parts stock Ford. (Obtainable anywhere.)
- Increases acceleration.
- Higher R.P.M.

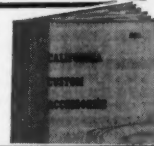
Now Ford and Mercury owners can eliminate costly ignition trouble. Kit converts faulty single point ignition to positive, fool-proof Dual Point ignition using your same single coil and one condenser. All parts and instructions furnished. Install it yourself.

**Only
\$7.95 PER
KIT**

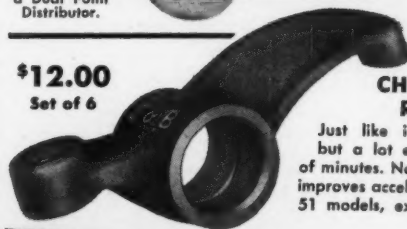


New Chrysler V-8 is factory equipped with a Dual Point Distributor.

NEW CUSTOM CATALOG Over forty pages packed with our latest, speed and custom equipment. Many bargains to add to the beauty and performance of your car. Send for it today! Only 25c (refunded with first purchase).



\$12.00
Set of 6



CHEVROLET HI-LIFT ROCKER ARMS

Just like installing a semi-race cam, but a lot easier. Installed in a matter of minutes. No motor disassembly. Greatly improves acceleration and speed. Fits 1941-51 models, except Power Glide.

**ALL MERCHANDISE
GUARANTEED**

\$2.00 deposit on C.O.D.'s

DIRECTIONAL SIGNAL

Converts parking and tail lights into combination parking and directional signals plus combination stop and directional signals. Everything furnished. Specify make and year as below.

Buick	1942	Ford	1941-50	Olds	1940-50
Chev	1939-50	Hudson	1948-50	Pack.	1940-42
Chrys.	1940	Jeepster	1948-49	Plym. Del.	1949
Crosley	1949	Jeep Sta.	1948-49	Plym.	1950
DeSoto	1940	Kaiser	1946-50	Pont.	1940-50
Dodge	1940	Merc.	1941-50	Stude. Com.	1941-49

\$9.95 Complete



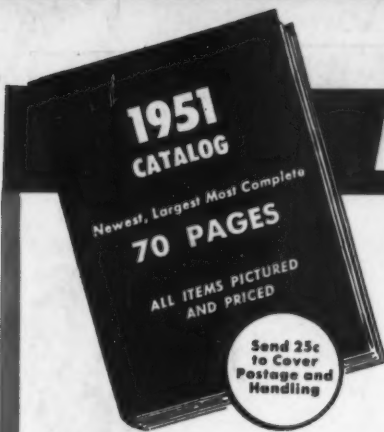
Eastern

AUTO SUPPLY CO. 3319 MT-7, S. Grand Ave.
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DRESS UP YOUR CAR WHILE MATERIAL PERMITS

BETTER HURRY...

Take Advantage of This Offer While Our Stock Lasts!



Our Catalog is completely revised and illustrates all items now available for your car—Send 25c today.

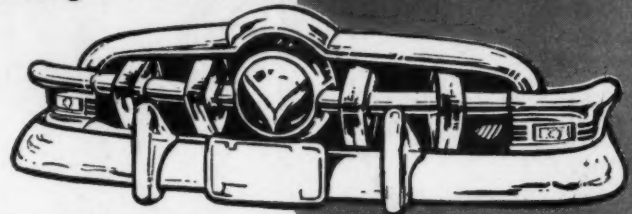
Dealers send for our New Dealer Catalog.

25% deposit required on all C.O.D. orders.

Be sure and specify year, make and model on all orders.

BUILD YOUR OWN CONTINENTAL KIT

Tire cover only—for tires sizes 6.00x16—6.50x16—6.70x15, only \$23.50.



COMBINATION—For '49 & '50 Fords

Grille Trim and V Center offer.....\$18.95
Individually—Grille Trim.....\$13.95
V Center.....\$ 5.95
Grille Trims for 1951 Ford & 1949-'51 Chev.\$12.95

NEW IMPROVED OVERDRIVE SELECTOR

For easier installation.....\$9.95
Fits all cars with Borg-Warner Overdrive Solenoid-operated.
* 6 Forward Selective Speeds
* Automatic Hill Holder



AA CUSTOM EQUIPMENT

Aluminum Dual Manifolds

32-48 Ford & Merc.....\$32.50	37-51 Chevy.....\$35.00 (Except Power Glide)
49-51 Ford & Merc.....35.00	37-51 Plymouth.....34.50
Cast Iron Heads	
34-48 Ford & Merc.....\$49.50	49-51 Ford & Merc.....\$59.50

V-8 FENDER ORNAMENTS

Same as on 1951 Fords. Can be used on any car—only.....\$1.25 pr.



CAD FINS

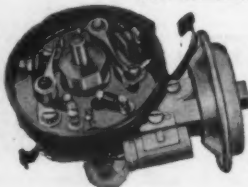
Identical Cadillac duplication now possible. Cast of solid brass ready for welding and leading to become an integral part of body. Light, completely wired and ready for installation. Paint will not peel. For 1949-'50 Ford, Small Olds 1951, 1949-'51 Chev. 1949-'51 Pontiac, Small Buick 1951. Specify. \$32.50 pair complete.

CONTINENTAL TIRE KIT

Ready to install:
1949-'51 Ford.....1949-'51 Chevrolet.....\$99.50
1951 Kaiser.....\$134.50

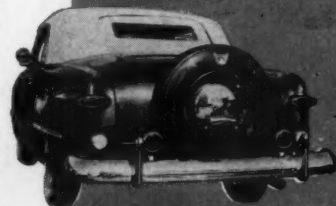
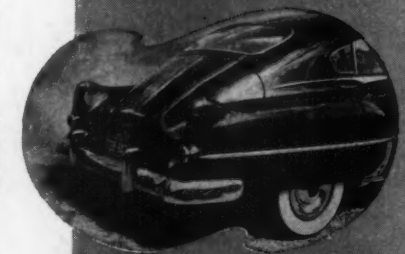
ROEMER DUAL POINT DISTRIBUTOR CONVERSION KIT

1949-'51 Ford & Mercury. Eliminates bucking and missing. Gives increased acceleration and smoother performance. Ready to install—only \$7.95.



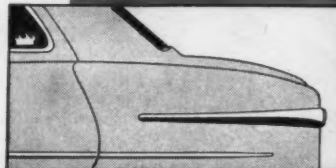
FORD FENDER STREAMER

A Chrome "doll up" item to bring your 1949-'50 Ford up to date—Same as on the 1951's—only.....\$6.95 pr.



CHROME DUAL TAIL PIPES

Give your car the appearance of dual headers and exhaust system—only.....\$9.95
With Mellow-Tone Muffler \$15.95
FOR ALL CARS



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